Textile World

ESTABLISHED 1868

CONTENTS OCTOBER 1932

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TEXTILE WORLD

(Formerly *Textile World Journal*) with which are combined *Textiles*, *Posselt's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions, $3 per year; Canada (including Canadian duty), $3.50; all other countries, $5, U. S. currency, or 25 shillings. Single copy, 35 cents, excepting special issues.

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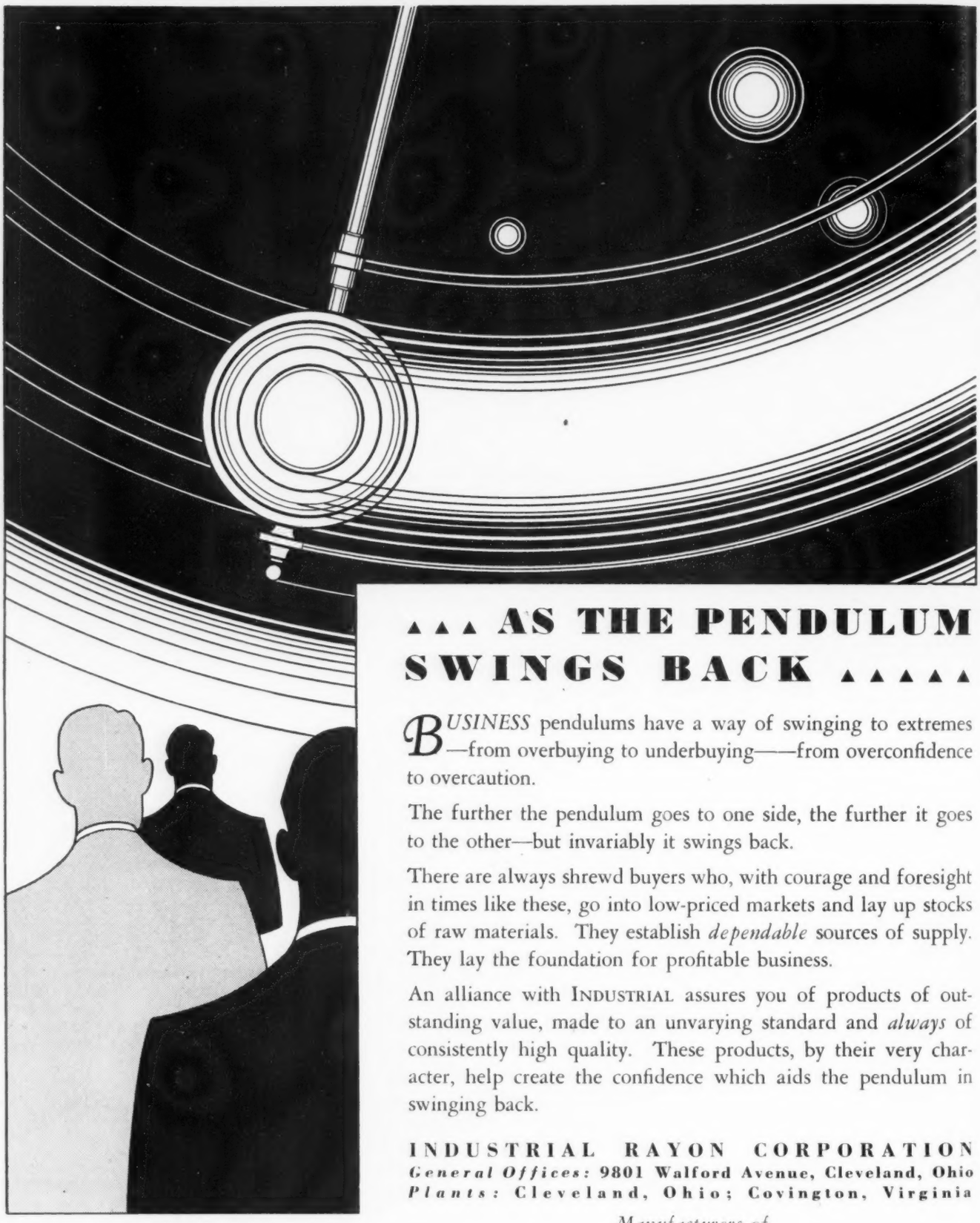

▲▲▲ AS THE PENDULUM SWINGS BACK ▲▲▲▲▲

BUSINESS pendulums have a way of swinging to extremes—from overbuying to underbuying——from overconfidence to overcaution.

The further the pendulum goes to one side, the further it goes to the other—but invariably it swings back.

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October, 1932

Textile World

PUBLISHED BY BRAGDON, LORD & NAGLE CO.
DIVISION OF McGRAW-HILL PUBLISHING COMPANY, INC.

Vol. 82. No. 4

Editor: DOUGLAS G. WOOLF

Textile Leadership Again Beckons

SPEAKING personally, we find our social status is improving.

For about ten years, revelation of our connection with the textile industry has seemed almost always to produce an embarrassed silence, broken finally by expressions of sympathy. In less polite circles, the reaction has been even more abrupt.

Nowadays, it is quite different. Association with textiles seems to arouse envy rather than scorn. What has long been regarded as a "sick" industry is now hailed as a leader.

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We would not take this too seriously if we thought that the changed status was due merely to the current spurt in volume of textile business. We are conscious of the fact that clothing has to be replaced before steam shovels and radios and other gadgets. We are aware that anticipation of this replacement buying was one of the reasons for the textile improvement.

However, we feel there is a sounder basis for the industry's new position. During the last seven years, much has been accomplished. Many of the disturbing internal factors which led to the textile depression have been mitigated.

Unwarranted plant expansion has been halted. Much equipment has passed out of the picture. Night operation has been curtailed. Organizations have become flexible enough to profit by rapid style changes, rather than to be submerged by them. Merchandising-consciousness has been developed. Marked mechanical progress has been made, as reflected in the exhibits at the Southern Textile Exposition this month. More important than any of these, however, is the new determination on the part of most branches of the industry, to balance production with demand.

The effect of most of these changes has been largely obscured by the general business depression. That effect, in fact, had just begun to assert itself when the crash came in 1929. Since that time, the industry has had all it could do to hang on. We believe, in view of the circumstances, it did that job remarkably well.

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However, looking ahead for the next several years, we can visualize a period during which the industry can make progress, rather than merely hold its own. We see an opportunity for positive, rather than negative, accomplishments.

We are not ignoring the additional fundamental work which must be done before permanent prosperity can be assured. Nor are we predicting an era of great plant expansion, or easy profits.

But if the industry will follow along the path it has travelled, with necessarily negative results, during recent years; if it will regain a consciousness that a textile manufacturer *can* make money and a determination to do so—it can assume once more its position as one of the leading industries of the country.

It has enjoyed that position during the greater part of the industrial development of the United States. It is entitled to that position as a producer of a basic necessity and as one of the largest employers of labor.

The interruption of the last decade has not removed the opportunity for, and responsibility of, such leadership. On the contrary, we believe, it has laid the groundwork for sounder progress in the decade just ahead.

The Editor Says:

IT LOOKS like a hard winter. Optimism over the improved outlook should not obscure that fact. Improvement rapid enough to reduce unemployment to anything approaching a normal level cannot be realized. Walter Lippmann holds that "it is a conservative estimate of the prospect to say that the number of those who need help will be at least as large as it was last winter." Individuals may question his mathematics but cannot dispute his underlying thought. Nor is his argument vulnerable when he says that "the normally available resources of public and private charities will be seriously reduced" . . . . . From present indications, textile mill communities will fare better than the average industrial center. It is management's job to insure that. The answer is an old story—but an ever-new one, and particularly timely just now. Production schedules should be based, not upon the sales on the books or upon the sales that are hoped for, but upon current shipments. A back-log of orders is the best form of cold-weather insurance.

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NO MATTER how compelling may have been the reasons which influenced the founders of the Cotton-Textile Institute to include in its by-laws the provision that "legislative and political questions shall be excluded," there are far more compelling reasons today why that restriction should be removed. "Legislative matters"—and particularly those statutes regulating business—*must* be considered by the Institute if it is to realize fully its possibilities for leadership under present conditions . . . . . Consequently it is encouraging to learn that many leaders in the industry, including the president of the Institute, feel that the restricting clause should be removed and a new provision inserted which would give to the executive committee authority for dealing with legislative matters. Such a change is to be proposed at the annual meeting this month. We hope we shall have the pleasure of recording, in next month's issue, its acceptance by the membership . . . . . If adopted, this new provision will give the Institute a freedom of action which it needs badly; it will strengthen the organization with its members and in public prestige; it will enlarge the Institute's opportunities for bringing about necessary reforms. Today, no industrial organization can do a complete job if it is forced to ignore the question of revision of our anti-trust laws.

❖

A GREAT cotton manufacturing company in the South enters the low-end worsted field. This may easily be the fore-runner of similar moves by other cotton mills. It is even possible that a new form of intra-industry competition, on a large scale, is in the offing . . . . . Established manufacturers of low-end worsteds may bemoan this new competition, but at the most that will afford them only psychological relief. There is no law against the entrance of a cotton mill into worsted production. And from what we know of the one company in question, specifically, we doubt that it is going into a losing game . . . . . There is no specific advice that one can offer to low-end worsted producers, in this connection, other than this: Recent textile history contains eloquent records of shifting competition, both as between geographical sections and between branches of the industry. The man who can sense the potentialities of a movement when it is in its infancy is in a better position to adjust himself to it as it develops, than is a man who closes his eyes to it.

❖

"THE next change in wages will be upward. A constructive step:—the whole nation will benefit. Prudent manufacturers *will provide for this in the prices of their goods*" . . . . . The italics are ours but the quotation is from an advertisement of the Stillwater Worsted Mills. It expresses an extremely important thought in a simple and clear manner. Certainly, no one can doubt that the next change in wages must be upward. It is unthinkable that there should be any further degeneration. Provision for this change in goods prices is not only a prudent act; it will hasten complete recovery . . . . . The textile industry, in view of its relatively better current position than that of industry in general, can show the way.

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WE HAVE two strong personal convictions just now . . . . . One is that no *permanent* recovery is possible in the American textile industry or in any other industry in this or any other country until the effects of the war are completely wiped out, and that one sure road to that end is to cancel the debts of that war, and to take every step to make another war impossible . . . . . The other conviction is that some type of a general sales tax, or a tax on sales if you prefer it that way, is going to be found the only *permanent* solution of our budget problem . . . . . Naturally we don't expect everyone to agree with us in these beliefs but we do expect everyone to be thinking about these two problems. After all, they are not matters that concern merely MacDonald and Herriot and Stimson and Mills. They concern everyone of us, whether we make goods or sell goods or work for someone who does one or the other.

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SPEAKING in the first person singular for a change, I am a war "veteran." My "adjusted compensation certificate" has a face value of $1,233, due in 1945. I could put that $1,233 to excellent use right now—but I don't expect it any more than I expect to receive prematurely the face value of any of my commercial life insurance policies. . . . . There are of course many veterans who have a more urgent need for money than I have. But so are there many farmers and cotton-mill workers and ex-brokerage clerks. Unemployment, it seems to me, is not a class problem; its victims in one class are not, merely because of membership in that class, entitled to greater sympathy or help than victims in any other class . . . . . I hope and believe that the public resentment which followed the recent action of the American Legion will prevent cowardly politicians from listening further to the intimidating ballyhoo of this bloc. But the danger is still there—and those who do not favor this large-scale hold-up should be on guard this winter.

Southern Exposition...

TODAY AND FIFTY YEARS AGO

THE "breaks" are with the Southern Textile Exposition. A few months ago it seemed probable that this event, to be held in Textile Hall, Greenville, S. C., Oct. 17 to 22, would be shrouded in gloom. Instead, the outlook will be brighter than it has been for several years. Excellent volume of business has been booked, mills are busy, prices are stronger.

This set of circumstances should produce not only a much larger, but a more receptive, attendance than could have been expected last spring. Mr. Mill Man, who hesitated then to buy even a spare necktie, is in the mood now to look at a new machine with an appraising eye. He may not rush to place his order before leaving Greenville, but at least he will be a "prospect." And "prospects" had become almost an extinct breed a few months ago.

In addition to the big event, the exposition itself, there will be several other events to keep the visitor interested. On the evening of the opening day, Monday, Oct. 17, the Cotton-Textile Institute will show the new styles in cotton dresses for autumn; Greenville girls will assist as models. On Wednesday, Oct. 19, there will be a meeting of the Textile Section of the American Society of Mechanical Engineers. That evening, the Junior Charities will give a "Prosperity Ball." The fall convention of the Southern Textile Association will be held Friday, Oct. 21; that night a dance complimentary to the members will be given.

Altogether, it looks like a good party.

And—Fifty Years Ago

There was another southern party just a little over a half-century ago: the Cotton Exposition held at Atlanta, Ga., in 1881. As the first show of its type ever held in the South, it was an important mile-stone in the industry's progress. It brought together cotton growers, manufacturers, and machinery makers; northerners and southerners.

We have just finished browsing through the first few issues of the *Textile Record*, published in Philadelphia, afterwards merged with *Textile World*. The sequence of events leading to the Atlanta exposition is revealed as follows:

Vol. 1, No. 1 of the *Textile Record* dated September, 1880, reprinted a letter from Edward Atkinson, widely-known textile authority, to the New York *Herald*, in which the suggestion of a "great exhibition exclusively devoted to cotton" was advanced. The editor of the *Textile Record* enthusiastically endorsed the idea and added that "Atlanta, in the South, would be a most influential location for an exhibit of the entire range of interests in cotton."

Evidently the publishers of the new textile paper, James W. Nagle (brother of Frank L. Nagle who is still actively connected with TEXTILE WORLD) and John W. Ryckman, believed in saying it with deeds. Later that fall, they spent several weeks traveling through New England and the South arousing interest in the proposed exposition.

And so, in the Nov. 28, 1880, issue of the Atlanta *Constitution* we read that "on Friday, Mr. James W. Nagle and Mr. J. W. Ryckman, of Philadelphia, dropped into the *Constitution* office. The gentlemen are publishers of the *Textile Record*, the only paper in the United States devoted to the cotton manufacturing trade. They come to Atlanta for the purpose of organizing the Cotton Exposition and getting it into shape. . . . They bring the very highest testimonials, and come as business men and not as adventurers. . . . They agree to take $2,000 worth of stock themselves, and to get much more taken in the North. They are gentlemen of character and position, *pay their own expenses*, and simply ask a fair and impartial hearing." (Italics are ours.)

Well, they got their hearing—first, before a small "meeting of prominent citizens in the breakfast room of the Kimball House" on Nov. 30, and then before a larger gathering on Dec. 2. At the latter, the International Cotton Exposition Association was formally launched. Its officers included Senator Joseph E. Brown of Georgia as president; 25 vice-presidents "chosen from the leading commercial depots of the United States"; Samuel M. Inman, of Georgia, as treasurer; and John W. Ryckman, one of the publishers of the *Textile Record*, as secretary. H. I. Kimball, prominent Atlanta citizen, became general manager.

Two days later, on Dec. 4, 1880, the *Constitution* stated editorially that "it was evident to all that Mr. Atkinson's excellent idea could only reach substantial effect by being taken up and pushed"—and added:

"The selection of Mr. John W. Ryckman, of Philadelphia, as secretary, was an excellent one. He is a young journalist of no mean caliber, has had much experience in the planning of similar industrial expositions; is brim-full of energy and spirit; has a wide acquaintance with the cotton manufacturers and machinery makers of the North; is one of the publishers of the *Textile Record*, the organ of these trades, and brings to his aid every qualification essential to the successful prosecution of his duties. While engaged in a business in which he takes just pride, he has very generously consented to come at once to Atlanta, open his office, and devote himself diligently to the work of the association. That he will do it thoroughly is sufficiently demonstrated by what he has accomplished here during the past week in connection with his associate and partner, Mr. James W. Nagle. These gentlemen came to Atlanta to urge upon our people the importance of immediate action in this matter, and they certainly deserve great credit for their unselfish labor in bringing about the organization."

Thus was the Atlanta exposition born, to come into fruition the following year. On its site today stand the Exposition Cotton Mills.

The publishers of TEXTILE WORLD are naturally proud of the part its predecessor played in that enterprise. They are particularly proud of the fact that this publication and its forbears have been serving the southern industry throughout its period of remarkable growth. In 1880, there were 561,360 cotton spindles reported active in the cotton-growing States; in August, 1932—the latest month for which records are available at this writing—there were 16,227,232 spindles active, out of 19,105,052 in place, in those same States.

With such a background, and with new hopes for the future, the 1932 Southern Textile Exposition makes its bow.

TEXTILE WORLD's Guide to Exhibits at the Southern Textile Exposition appears in this issue commencing on page 91. A survey of the equipment developments reflected at the exposition will be published in next month's issue.

Mill Modernization

AS PART OF AN INTELLIGENT PLAN FOR INDUSTRIAL PROGRESS

An interview with
L. W. Robert, Jr.,
President, Robert & Co., Atlanta, Ga.

◆ The replacement of obsolete equipment during periods of sub-normal business activity has been stressed repeatedly by the various technical societies, and in the editorial and advertising pages of the business press. The necessity of plant modernization is generally accepted—what individual mills will do about the problem is another thing. In reply to our questions, L. W. Robert, Jr., president of Robert & Co., Inc., Atlanta, Ga., a leading industrial engineer, has advanced some timely thoughts on the subject of textile mill modernization. Manufacturers who expect to visit the Tenth Southern Textile Exposition this month will find Mr. Robert's opinions, as presented in this interview, of particular interest.

MODERNIZATION projects in the textile industry will be conducted along more intelligent lines in the future than in the past. The method of dealing with this problem will be entirely different from that followed by textile mills in the years immediately after the World War when there was a large volume of haphazard machinery replacements. With the future replacement of obsolete equipment in mind, at least 80% of all the cotton manufacturers in the United States have been devoting hours of careful study to the status of their productive facilities. The highly competitive conditions of recent years have demonstrated the limitations of antiquated equipment to more and more mill executives.

This was the answer of L. W. (Chip) Robert, Jr., to one of the major questions in our interview. Particularly as it reflects the thought of an engineer with an intimate knowledge of the textile industry, it offers much encouragement to those of us whose prosperity depends upon the financial progress of this great industry. He does not predict a sudden burst of activity, because no one understands better than Mr. Robert that improved mill earnings must precede any considerable expansion in plant modernization. Certainly earnings must increase before mills will be able to borrow funds for additional capital investments. The mere fact that an increasing number of mill executives are diligently searching for "bugs" in their production costs, however, is suggested by Mr. Robert as an indication of greater interest in the possibilities offered by modern equipment.

An illustration of this process of self-examination, cited by Mr. Robert in his talk with a TEXTILE WORLD editor, was a plan adopted by the agent of a large southern cotton mill. After making a study of the various elements of cost in his organization, including everything from the mill village to the shipping department, this agent had written memoranda on steps that must be taken in order to make each department 100% efficient and to reduce its proportionate share of the company's manufacturing costs. This executive's plan of action begins where the greatest loss was shown to exist. His plan includes replacement of group drives by individual motor drives; larger spinning rings will be installed, and this step in turn will be followed by the purchase of single-process picking equipment.

The cost of new machinery, including labor required in its installation, is always greater during periods when the industry is enjoying a high rate of profitable activity. Consequently, the present is a particularly advantageous time for revamping productive facilities, according to Mr. Robert. Regardless of whether machines are running or not, they are becoming obsolete in all manufacturing industries, and eventually must be replaced. Machinery builders and other inventors naturally direct more thought to the development of labor-saving equipment during slack times because of pressure toward economy and the saleability of new devices. This condition has been dramatized in the displays at recent machinery expositions.

"Although a manufacturer may not find his company in position to purchase new machinery at the present time," Mr. Robert continued, "he should not overlook the operating economies that are often made possible by a careful study of plant layout. These studies not only reveal the weak spots that can be strengthened without additional investment in new equipment, but also furnish the mill with a definite program to follow in future modernization. The cost of engineering services in making studies of this kind is comparatively small, particularly when consideration is given to the resultant savings, and moreover it is something that can be started immediately.

"The rearrangement of plant layouts in order to permit the most efficient operation of existing equipment, the possibilities of which have been sadly neglected by many cotton manufacturers, may be undertaken during slack periods without seriously interrupting production.

The consolidation of two or three weave rooms, for instance, into one central weave room would simplify control of the operation and reduce the cost of supervision in some of the larger mills.

"Another important principle that should be observed in studying machinery layouts is that of providing a straight flow of material through the plant. The back-tracking or crossing of material in process, obviously, will result in confusion and additional handling costs. The problem of securing a straight-line flow of production, good lighting and the proper alley spacings, naturally is much more difficult in the modernization of an existing plant than in the design of a new one.

"While old manufacturing buildings frequently can be utilized to accommodate modern arrangements of machinery, due consideration should be given to the possibilities of minor improvements in the buildings themselves.

"Such factors as proper humidity, uniform temperatures, correct ventilation and adequate lighting, in addition to having an important effect upon the health of the mill operative, may account for substantial differences in the normal output of the machinery. The cumulative benefits of improvements that can be made, often with little or no additional investment, are surprising indeed. The data developed by these plant studies, as many alert manufacturers have discovered, pave the way for savings in production costs at points where inefficiency is least suspected.

"The manufacturer who plans to stay in business cannot regard with indifference the strides made by machinery builders in development of new textile equipment."

—L. W. Robert, Jr.

"The manufacturer who plans to stay in business cannot regard with indifference the rapid strides made by the machinery builders in the development of new textile equipment. If he assumes an attitude of complacency in this respect, it will not be long before his costs are completely out of line; and perhaps eventually he will be in the unfortunate position that many manufacturers find themselves today—with obsolete plants that nothing short of a return to war-time prosperity can possibly save."

The outlook for textile mill modernization during the next 12 months, assuming that business has at last turned the corner, should be regarded with considerable optimism by machinery builders. Many supplies and repair parts must be purchased if the rate of operations continues to increase. In several mills recently visited by Mr. Robert, at least 20% of the machinery had been stripped of all parts and accessories, as a means for running the other 80% of the plant with minimum purchases of supplies. Several weeks would be required to get this stripped machinery into an operating condition. Indeed, it is doubtful whether some of it will ever be operated again.

This observation by Mr. Robert led naturally to the question whether or not the steady decline in cotton spindles in place in the United States had not reached a point so low that anything like a normal demand for goods would more than absorb maximum production of the industry's present capacity. It was Mr. Robert's opinion that, largely because of the factors mentioned in the preceding paragraph, current Department of Commerce reports on spindles in place do not reveal the full extent to which actual capacity of the cotton textile industry has been reduced. From 1927 to 1932 cotton spindles in place in the U. S. declined somewhat more than 13%.

When questioned concerning the outlook for greater diversification of textile manufacturing in the South, where his firm has handled many large construction projects, Mr. Robert replied that this trend doubtless will continue and that eventually all kinds of the finest cotton goods will be manufactured in the southern States.

Another important development which, Mr. Robert expects, will continue is that of vertical integration, bringing with it a closer alliance between the producers of staple cotton goods on the one hand and the leading consuming factors on the other. The fabrication of goods into finished products, a trend that has grown during the depression, offers greater opportunities for the large manufacturing organization than for the small plant, in Mr. Robert's opinion. If a concern has engaged in the production of a line of goods for many years and that line has not become obsolete, he advises that the mill should stick to its product, modernize its plant to reduce costs to the lowest possible level, and thus take full advantage of its experience in making that particular type of goods.

Mock-Leno

By T. R. Hart
Associate Professor,
Textile School of N. C. State College

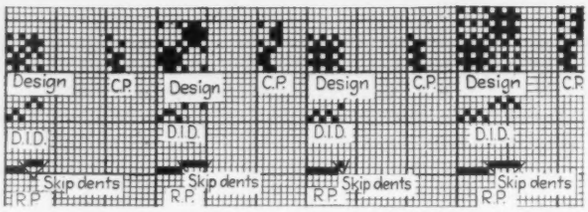


Fig. 1. Three-and-three *Fig. 2. Four-and-four* *Fig. 3. Five-and-one* *Fig. 4. Five-and-five*

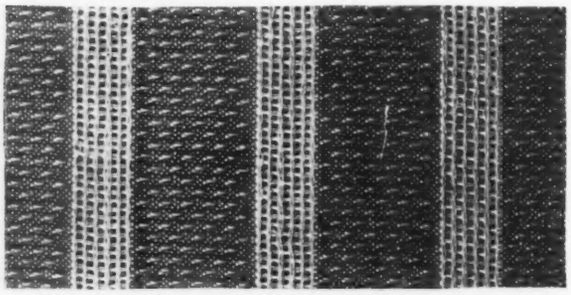


Fig. 5. Dress-goods pattern employing three-and-three weave

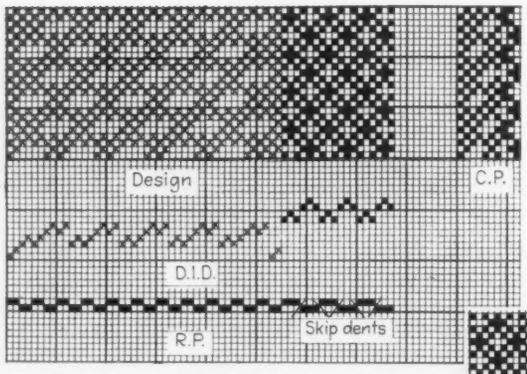


Fig. 6. Design for Fig. 5, employing No. 32 reed

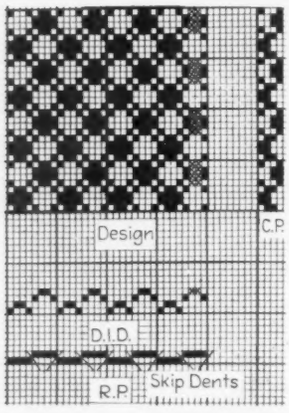


Fig. 10. Design for Fig. 9, employing No. 15 reed

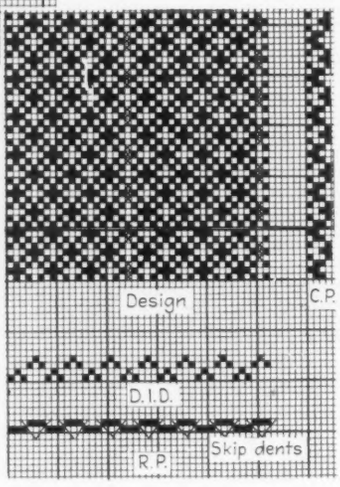


Fig. 8. Design for Fig. 7, employing No. 16 reed

THE recent popularity of mesh and other open-weave fabrics has caused mock lenos to be more extensively used than ever before, as many salable fabrics can be made from them by mills which do not have the trained operatives and attachments necessary to manufacture regular leno goods.

Four of the basic mock-leno weaves are illustrated herewith. Figs. 1, 2, 3, and 4 show the designs, drawing-in drafts, chain plans, and reed plans for respectively the three-and-three, four-and-four, five-and-one and five-and-five mock lenos.

The simplest and most useful of these weaves is the three-and-three. The threads run in groups of three; and the outer threads in each group, weaving directly opposite to each other, cause a break in the pattern. The picks also run in groups of three, so that a break is also made in the filling. These breaks are accentuated by a very tight weaving of the warps, the tension causing the outer threads in each of the groups to lie close together. The three-and-three mock leno is usually reeded three in a dent; and to make a particularly open fabric, an empty dent should be left between each group.

Fig. 5 shows a popular dress-goods pattern which might be termed a "veined stripe." The design, drawing-in draft, chain plan, and reed plan for this fabric are shown in Fig. 6. A good ground effect was obtained by interweaving 150 - denier white rayon filling with the 44

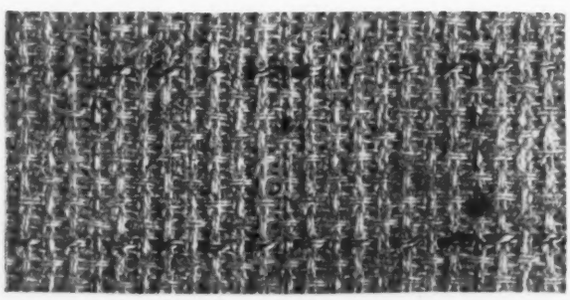


Fig. 9. Similar to Fig. 7, but employing four-and-four weave

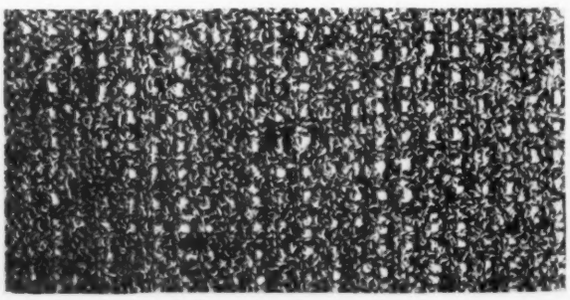


Fig. 7. Recently popular imported fabric employing three-and-three weave

Design

OF UNPRECEDENTED APPLICATION THIS YEAR

ends of 60/2 green; while the veined stripe was made by using the three-and-three mock leno on 18 ends of 30s white.

Figs. 7 and 8 illustrate a recently popular imported fabric made with the three-and-three mock leno weave, warped 20 ends of light-brown and white fancy-twist yarn, and one end of yellow, red, and white fancy-twist yarn. The fabric was checked by inserting the filling in the same manner, requiring a pick-and-pick loom. Figs. 9 and 10 illustrate a fabric somewhat similar to the one just described, but made with a four-and-four mock leno and capable of being woven on an ordinary drop-box loom. This fabric was warped and picked 30 light-blue and white fancy-twist yarn, and two pink and white fancy-twist yarn. Figs. 11 and 12 represent a fancy pattern that is suitable for shirt waists and dresses. It is made from 30s cotton warp and 150-denier rayon filling by combining the three-and-three mock leno with the plain weave.

Mock-leno designs can also be made from motifs, the object being to produce large designs that can be woven on comparatively few harnesses. Fig. 13 is a mock-leno design made from the motif shown in Fig. 14. The method of making these designs is as follows: First decide upon the motif to be used, then upon how many ends and picks each square in the motif will represent. When using the three-and-three mock leno, each square in the motif can represent 6x6, 12x12, 18x18, etc., in the design. In Fig. 13 each square in the motif equals 12x12. Every time a filled-in square shows in the motif, a 12x12 square in the design is painted with the three-and-three mock leno; and every time a blank square shows in the motif, a 12x12 square in the design is painted with the plain weave. Fig. 15 is a pattern woven from Fig. 13.

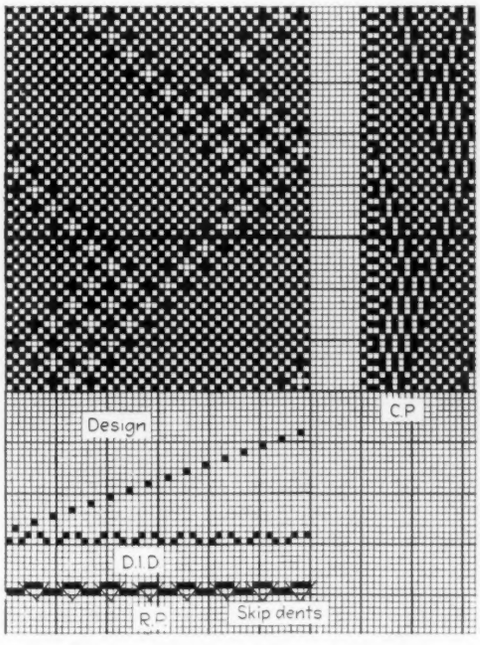


Fig. 12. Design for Fig. 11, employing No. 36 reed

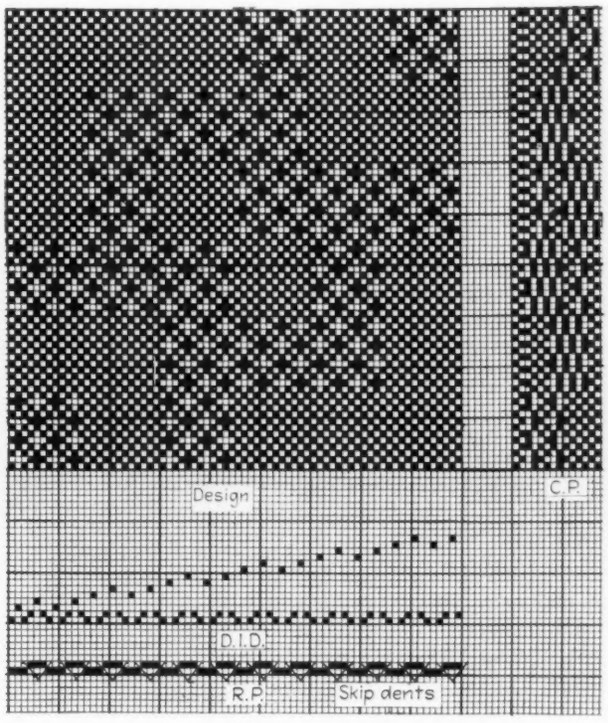


Fig. 13. Design employing motif in Fig. 14

Fig. 14. Motif used in Fig. 15

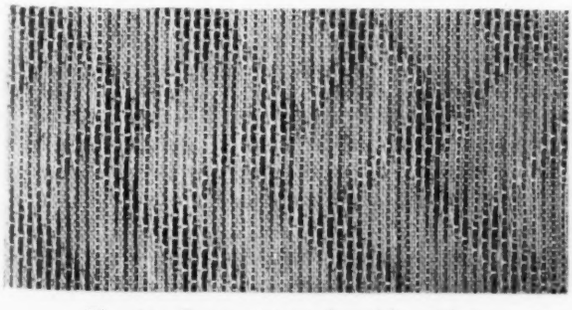


Fig. 11. Fancy pattern for shirt waists and dresses

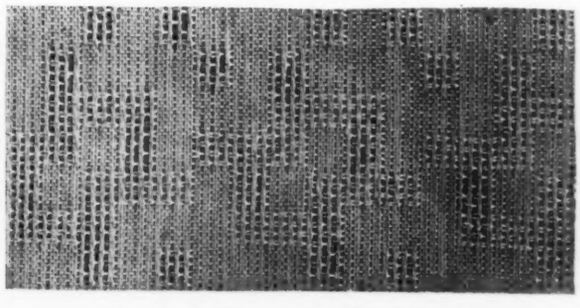


Fig. 15. Pattern woven from Fig. 13

Textile Wage Too Low

SAYS RETIRING PRESIDENT OF NATIONAL ASSOCIATION OF COTTON MFRS.

THE present wage scale in the textile industry is too low; it benefits no one—employer, employee or buyer . . . This statement by Irving Southworth, retiring president of the National Association of Cotton Manufacturers, was one of the outstanding developments at the annual convention of that association held Sept. 29 in Boston.

Another expression of opinion which aroused comment was the warning sounded by Dr. Melvin T. Copeland, of Harvard University, against the enactment of Federal legislation which would permit cotton mills under certain conditions, to enter into agreements regarding selling prices. Since it is becoming almost a matter of form for public speakers to urge revision of the anti-trust laws, particularly when addressing manufacturers, this contrary stand was of real interest.

The meeting was an all-star-performance. In addition to Mr. Southworth and Dr. Copeland, the speakers included Roy D. Chapin, Secretary of Commerce; Archibald B. Roosevelt, secretary of the National Economy League; Victor M. Cutter, president of the United Fruit Co.; and Charles F. Horan, of Hood Rubber Co.

The officers elected for the coming year include: President, Ernest N. Hood, treasurer of Pequot Mills, Salem, Mass.; first vice-president, Weston Howland, treasurer of Warwick (R.I.) Mills; second vice-president, Dexter Stevens, assistant to president of Utica & Mohawk Cotton Mills. The following were elected directors: Robert Amory, treasurer of Nashua (N. H.) Mfg. Co.; Henry G. Simonds, assistant treasurer of Pacific Mills, Boston; Morgan Butler, treasurer of Butler Mills, New Bedford, Mass.; W. Emerson Barrett, treasurer of Maverick Mills, Boston; Lawrence Richmond, treasurer of Crompton (R. I.) Co.; and Joel M. Barnes, of Barnes Textile Service, Boston.

ERNEST N. HOOD, treasurer of Pequot Mills, Salem, Mass., who was elected president of the N.A.C.M., is one of the outstanding men in the industry. He entered the employ of the Naumkeag Steam Cotton Co., now better known as Pequot Mills, in 1897. From 1917 to 1922 he was treasurer of the Arcadia Mills of Lawrence. He was also connected with the Monomac Spinning Co. in Lawrence in 1918. He was made assistant-treasurer of Pequot Mills in April, 1926, and treasurer in December of that year, which position he still holds.

48-Hour Week for Entire Industry

The retiring president's denunciation of the present textile wage scale came during his remarks urging a 48-hour week for the entire industry, which were read in his absence by Weston Howland. Pointing out that statistics show that the present cotton spindles in place operating 48 hours weekly will more than supply the normal demand for textiles, Mr. Southworth concluded that this, added to the fact that 48 hours is generally considered a reasonable working week, shows the justification of a week no longer than this. In fact, he qualified his statement with the clause "if not one of 44 hours, at least until investigation has been made as to what length working week should be."

"Considerable study has been made as to how much work can be asked of the operative in an hour," he said, "but none as to how many hours should be expected from him to best satisfy consumers' needs.

"It has come to be realized that goods will necessarily be made in the lowest cost plants and that the wage scale, irrespective of location, must be about the same. The past year has seen the higher scale in many places replaced by that of lower centers. Reductions at the start in one or two places have been met by competitors—unwillingly to be sure, but met. The willingness of many to maintain a fair wage scale has been nullified by the actions of those otherwise minded. The present scale is too low and benefits no one—employer, employee or buyer. Making allowance for sectional permanent advantages, a minimum figure should be set, below which no mill could go.

"With such general feeling as exists against the employment of women and minors at night, it should not be necessary to mention this subject but unfortunately the practice continues, although to a limited extent. If such labor were restricted to between the hours of 6 a.m. and 10 p.m. their interests would be protected and at the same time those of the manufacturer, since two shifts when demand warranted would be possible.

"To those who rightly bring up the difficulty and obstacles to attain these purposes, I call attention to the growing and grown belief that if industry itself does not take remedial steps of its own accord, restrictive and possibly injurious measures will be prescribed for them."

Although some disappointment was expressed over the fact that Dr. Copeland found it impossible to give a summary of the results of the research work in cotton textile distribution, being conducted for the Textile

Foundation, his general observations on merchandising were enthusiastically received. His address appears elsewhere in this issue. Russell H. Leonard presided at the session at which this talk was presented.

Accomplishments of Association

Reports of officers and committees of the association revealed a year of accomplishment in the face of most trying conditions. In view of those conditions, it was not strange to learn from the report of Russell T. Fisher, secretary, that "the finances of the association are in a serious position, and either some of the activities must be given up or those mills not members must be made to realize their responsibility to the association."

"Of the 11,000,000 spindles in place in the New England States," said Mr. Fisher's report, "5,800,000 are represented through sustaining membership in the association, with another 2,900,000 represented through active membership. The mills that are not sustaining members are reaping the benefits equally with those that are contributing to the support of the association. We have suffered in income both through resignations and through reduced dues from sustaining members, with the result that it has been necessary to effect many economies."

Nevertheless his report showed a wide range of activities conducted by the headquarters office during the year. The standing committees have also been active, judging from the report of the committee on rates and transportation, of which Henry G. Simonds is chairman; the report of the cotton committee, headed by Amory Coolidge; and that of the tariff and taxation committee, Robert Amory, chairman.

Hood Urges Budgeting of Production

Intelligent budgeting of production to avert overproduction and to insure steadier employment through the coming winter was urged by Ernest N. Hood, the new president, in his remarks as toastmaster at the banquet. "Such a program," he stated, "will prevent the piling up of unsold stocks of goods—improve prices and help to carry the workers through the winter with at least a minimum wage."

"I realize that there are some mills which produce a line of goods so seasonal and so affected by style that they must take orders when they can get them. Even in such mills it may be that something can be done to at least improve a situation where there are periods of intense activity and then flat shut-downs."

In making budgeting of production possible throughout the industry, the cooperation of the retail merchants of the country would be of immense value, in Mr. Hood's opinion. Consequently he suggested that the association appoint a committee to meet with representatives of the National Retail Dry Goods Association and discuss what can be done in this regard.

The new president concurred in the statement of Mr. Southworth, the retiring president, that the present textile wage scale is too low. "I know many New England cotton mill treasurers who are now paying lower wages than they would like to do," he stated. "I know many of them who did not cut wages until wage reductions and consequent cut-throat competition in other sections of the industry compelled them to reduce costs by lowering their wage scale. The pathetic feature of the situation is that there are a sufficient number of such manufacturers to bring about ruinous prices in the market. Buyers will purchase goods at the lowest prices; nothing else can be expected of them."

At the banquet, the association medal for distinguished service to the industry was presented to Prof. George B. Haven, in charge of textile research at M.I.T. The award was made "for his many years of accomplishment in furthering the knowledge of the properties of the cotton fiber, yarns and cloths, through the application of research, and in recognition of his preeminence as an educator and scientist in the field of cotton textiles." The medal was presented by Franklin W. Hobbs, who also paid a high tribute to Mr. Hood, the new president.

Roy D. Chapin, Secretary of Commerce, in his banquet address congratulated the cotton-textile industry on the progress it has made in balancing production with consumption. This industry, he stated, has set a splendid example during the trying times through which American business has been passing. He urged cotton manufacturers, as business improves, not to abandon the principles of sound cooperation. "Do not forget the lesson that you yourselves have been teaching so many other less progressive industries," he said, "that a proper relationship between consumption and production is essential to business progress."

◆

What Happened at N.A.C.M. Meeting

ERNEST N. HOOD, treasurer of Pequot Mills, elected president of the National Association of Cotton Manufacturers succeeding Irving Southworth. . . . Mr. Southworth stated present textile wage scale is too low and urged uniformity in hours, in minimum wage, and in employment of women and minors. . . . Dr. M. T. Copeland, speaking on merchandising, urged against revision of anti-trust laws which would permit price agreements. . . . Secretary of Commerce Roy D. Chapin was honor guest and speaker at banquet. . . . National Economy League and its purposes were explained by Victor M. Cutter and Archibald B. Roosevelt, speakers at the sessions. . . . Charles F. Horan spoke on workmen's compensation insurance. . . . Prof. George B. Haven was awarded association medal for distinguished service to the industry.

The Merchandising Job

IN COTTON TEXTILES OFFERS OPPORTUNITIES FOR PROGRESSIVE ACTION

By Dr. Melvin T. Copeland

Professor of Marketing, Harvard University
Graduate School of Business Administration

◆ *Dr. Copeland had hoped to present, at the National Association of Cotton Manufacturers meeting, last month, some of the results of the research work, under the auspices of the Textile Foundation, which has been under way for several months on the problem of merchandising organization and methods in the cotton textile industry. Dr. Copeland stated that the study had not been completed to a point which would warrant summarization. Consequently his address, which appears herewith, was based on his general observations and experiences, and was in no sense a résumé of the report which will be issued in the near future.*

MERCHANDISING, as we use the term, comprehends product planning and control. It includes the questions of business management involved in deciding what to make, how much to make, and when to make it, approached from the sales standpoint.

This matter of merchandising brings us face to face with a basic business question of the first magnitude. Shall the marketing operations of any particular company be adjusted to sell what the factory decides to make? Or, shall the factory be instructed to make what the marketing organization can sell at a profit? Obviously the two activities are inter-dependent. It is the task of merchandising to harmonize them, and it is the duty of the general executives of each company to be sure that adequate provision is made in the organization for the performance of this merchandising task.

In several companies with which I am acquainted, outside the textile field, failure to provide satisfactorily for the handling of the merchandising job has resulted in serious losses. In one case a company manufacturing plant equipment brought out a general utility machine which was a big improvement over anything else then available. The machine was planned and the design completed by the production department and then turned over to the sales department to sell. The machine was efficient in performance but crude and clumsy in appearance. A couple of years later a competitor brought out a similar machine which was much more attractive in external appearance, and just as efficient. Needless to say, the second company immediately gained sales at the expense of the first company. The essential difference between the two was in the degree of merchandising ability manifested, and this difference was primarily a matter of organization. In the first company no definite provision had been made for merchandising responsibility which takes real cognizance of marketing factors.

In another company in an entirely different industry, the responsibility for planning of new products and revamping old products was everybody's business, as it is in so many cases. About four years ago the company made a definite assignment of the merchandising task and an improvement at once took place. There was one type of product which previously had been talked of from time to time by men in the organization, but in the development of which little had been done. One of the first acts of the man to whom the merchandising task was assigned was to study the sales possibilities of such an item and to work with the factory in determining how to produce it on a commercial basis. The result was a product which had a large immediate sale. It was necessary to have some one individual responsible for a job which previously had not been specifically allocated.

A third example is that of a company in still another industry which now is striving to avoid bankruptcy because of a grave error made a couple of years ago in deciding on the quantity of merchandise to produce. The company had in its possession information which by simple analysis would have shown that the production schedule adopted for certain key items was absurdly large even under normal business conditions. As happens in so many companies, there were many long "conferences" between the executives on the production program, but no one individual was given the task and responsibility of making a careful, complete, and comprehensive analysis of the available facts, with the result that an almost fatal mistake was made.

In the textile industry there are numerous companies in which the organization does not lend itself to effective merchandising. If the chief executive concerns himself almost wholly with production matters, the company is in reality only a production department, with the result that merchandising and sales suffer.

I have stated that these merchandising problems are wisely approached first from the sales point of view. That does not mean, however, that the job should be

turned over to the salesmen with the privilege of doing as they please. In fact some of the worst merchandising situations with which I am acquainted are those in which the factory is obliged to follow almost every whim of the sales-force, with the result that the line is altogether too long, the production runs are short, the costs high, and the inventory top-heavy.

In approaching the merchandising task from the sales standpoint, the object is to find out what the market possibilities are, both qualitatively and quantitatively, and then to work out the plans whereby those possibilities can be realized. The plans must be checked as they are carried out. Merchandising, therefore, is one of the key planning jobs in running a business.

We have been hearing a good deal about economic planning since the Russian Soviet coined its slogan a few years back. I am heartily in accord with any program that will stabilize and improve our economic conditions. From my own intimate acquaintance with a rather wide variety of business situations, however, I am not optimistic that general industry planning is going to take us very far in this country in the near future. I apprehend that we cannot turn over our main thinking job to some small intellectual oligarchy to have it done for us. There are plenty of opportunities for collective action, through trade associations and other groups, in the collection of essential information and for the exchange of experience; but it still will be necessary for the executives of each company to carry the burden of formulating sound plans and policies. It is apparent to me that before we can hope for much in the way of centralized industrial planning, we must effect substantial improvements in the organization set-ups, methods of executive control, and planning procedure.

Cotton Industry Not the Worst

Prior to October, 1929, we had heard more or less about the high efficiency of American business management. That particular note has been heard less often during the last three years. Let us look at the facts frankly, without defensive bias or critical cynicism. I find that in most of our industries many illogical and irrational methods and practices exist. You know what some of them are in the cotton industry. I find the same or other equally unsatisfactory conditions in most other industries. At one time I though that the cotton industry was in about the worst predicament of any industry. That was merely ignorance on my part. The fact is that some of the major weaknesses showed up earlier in the cotton industry than in other industries merely because it was older and did not have a rapidly expanding market to cover administrative shortcomings.

The fact that there are so many weaknesses in our business management that we sometimes seem to be in an economic wilderness, with a business machine beyond our power of control, does not seem to me to be a cause for pessimism and discouragement. On the contrary, it means that we have an unrivalled opportunity ahead of us for economic and social advancement.

The cotton industry will be forced to play a leading part in this progress. I have emphasized merchandising because it serves well to illustrate the general problem of business management of which it is a part. The merchandising job in the cotton textile industry, furthermore, is one with which it is especially difficult to deal administratively. The production of cotton yarn and cloth involves highly technical details, with which the merchandising executive should be familiar. There are many diverse markets and the products are constantly undergoing change, partly as the result of fashion influences. The methods of distribution are unsettled, in fact almost chaotic. The whole set-up of the industry, furthermore, with various types of mills, selling agents, brokers, converters, and finishers, presents a complicated, competitive situation. Yet all these factors must be reckoned with in plans for the merchandising of cotton textiles.

I am referring to merchandising today merely by way of illustrating a larger problem, namely that of improving and strengthening the administration of our individual business enterprises. Can we maintain our competitive system on a higher, more rational, more humane basis, or are we to head for collectivism of some sort?

Legislation of "Illusory Benefit"

During the last few years we have had various proposals for legislation which would enable industries to combine for concerted action on various matters, with the provision of course that they would be subject to governmental supervision. Recently, I understand, legislation has been broached which would permit cotton mills to enter into agreements regarding selling prices under certain conditions. I will not stop to discuss the reasons why I am convinced on purely practical grounds that such legislation would be of illusory benefit. I will merely suggest that we should be very careful that we do not give up our birthright for a mess of pottage. Such legislation will be secured only on condition, of course, that the Government may exercise supervision over the manner in which the privileges granted are used. That will be the opening wedge for Government control. We should take warning from the predicament of our railroads before we commit ourselves to such a step. We also should realize that Government control means the employment of more people by the Government and therefore higher taxes. The chief reason for my dissent from this proposal, however, is that until we have learned how to administer our individual businesses more effectively, I do not believe that the Government can command the brains and ability for intelligent supervision or control.

At one time I thought the cotton industry was in about the worst predicament of any industry. That was merely ignorance on my part. Some of the major weaknesses showed up earlier in the cotton industry than in other industries merely because it was older and did not have a rapidly expanding market to cover up its administrative shortcomings.—M. T. Copeland

From what I have said, it is obvious that I am still highly individualistic in my views. I recognize that many evils exist. I am convinced, however, that there are so many opportunities for improvement in the management of our business enterprises that we should tackle the job of effecting those improvements before we seek relief relief in other directions. The merchandising task is one which offers especial opportunities for progressive action in many companies.

HOW A FELT COMPANY CREATED AN APPAREL VOGUE AND OPENED *New Markets*

Style change dramatized in advance from old-type felt bedroom slipper (left) to new type with high heel and combination of gilded leather with black felt (right). In center a group of promotional leaflets which put the new felt uses on the map.

STYLE plus resourcefulness can do magic in the way of promoting textiles but when persistently aggressive merchandising is added, the result sometimes is little short of revolutionary. The accomplishments of the American Felt Co. in this direction during the last six months constitute one of the striking promotional feats of the year. This firm, trained by long tradition to serve the industrial and utilitarian markets, decided early in the current year to sell felt fabrics to the apparel and accessory industries. Consumer response was so prompt and so widespread that today the firm's Franklin (Mass.) mill, one of five located in various parts of the East, is operating to capacity.

The new policy had its genesis last year when the company determined to expand its long-established bedroom slippers market to include shoes. In line with this plan, a large stock of highest-grade fine staple wool was purchased, and special new machinery to produce finer felt fabrics was acquired. The story then jumps forward to the current April when Mrs. Nona James, stylist, began a new campaign for the popularization of the company's fabrics in the apparel field. Convinced that the firm had not used color to its full possibility, Mrs. James cooperated with mill technicians in developing a wide range of fashionable mid-year shades. Equipped with several attractive swatches, she then approached the leading cloak and suit houses with the idea of introducing felt jackets for women. The time was not propitious as depression conditions had made the garment trade very hesitant, but the quality and coloring of the felt persuaded one manufacturer to try it out. These jackets were accorded prompt acceptance in the leading New York stores, and demand was further stimulated when a special felt jacket designed for the Los Angeles Olympics was officially adopted for the Olympic parades in that city.

Variety of New Apparel Uses

From jackets, Mrs. James turned her attention to hats, following in quick succession with bags, gloves, belts, trimmings and numerous novelties including felt animals as veil ornaments. In each of these industries the new fabric, "Soleil Felt," became popular almost overnight, thanks to the careful styling of the merchandise and the emphasis on quality in promotion. It might be mentioned that particular emphasis was placed on the design of new fabrics. This company concentrated on styling to a degree never known before in the felt industry, and the novelty appeal of the new lines was a big factor in winning trade and consumer response, because it anticipated fashion trends.

Consistent with the needs of the new market, important changes were made in the fabric, and further improvements are planned for this fall. Today the felt

is made in many different characters and finishes, specially created to meet the needs of the new industries in which felt demand has been built up. It was essentially a matter of mechanical development, and improvements along this line were necessary to lift the fabric out of the ordinary character of felt and make it available to the apparel field.

One of the striking features is that the outlets have been developed with practically no special advertising expenditures. Newspapers from coast to coast highlighted the felt merchandise in their fashion and general news columns, which helped to build consumer demand. The publicity became so widespread as to constitute practically a "felt vogue"; and quality stores in leading cities keyed their advertising of the merchandise to emphasize the word "felt," in much the same way that "wool week" and "cotton week" have been promoted.

Steady Flow of New Ideas

When the fall season opened, the apparel demand for felt gained further momentum. The company had followed up one new idea with another so rapidly that the summer let-down was brief. After the original effort on quality development, they turned to perforation as a new style appeal. The perforated felts proved a winner in the millinery field and virtually flooded the market through the warm weather months; it was carried through the whole range of bags, jackets, shoes, etc., and finally demand spread to other felt manufacturers who also entered the perforated fabric field.

Before the perforated fabric vogue had time to lag, the company was ready with another novelty — ribbed felt. This fabric is especially suited for shoes, bags, belts and brims for hats. It fits the call created for Bedford cord effects, especially invisible stripes and plaiting. This development is entirely new to the millinery field and it has been predicted by a number of large milliners that this may revolutionize the millinery industry. There also is the development of a draping quality which the company perfected and which had never been done before on fine felts. Among the auxiliary markets which responded to merchandising initiative, may be mentioned strip-felt knit goods. The felt cut into ribbons is plaited in pleasing color patterns and is being sold as trimming for suits and dresses. Some ingenious firms are plaiting strip-felt with Cellophane strip for the same market.

J. F. Marshall, sales manager of the American Felt Co., believes there are still many divisions of the apparel market which are promising outlets for felt, and he expects the winter to see further expansion in demand.

Analyzing her special promotional problems of the last six months, Mrs. James said color selection was a key factor for the increasing popularity of the fabric. Of the fall shades browns and blacks were volume leaders, with wine reds and forest shades of green as runners-up; she cited the light shades, especially gray, as the fashion leaders.

The major market as regards actual consumption is millinery, shoes and bags, with dresses and accessories following along next in line.

While many factors contributed to American Felt's success with the new policy, the main elements were: keen style sense coupled with quick thinking, close cooperation on the part of the mill and—last but not least—an astute grasp of publicity value in building consumer demand. As an instance of publicity's importance, may be cited the use of television programs last spring which helped to build momentum for the "felt vogue."

Upper center—Child's coat and scarf of fine felt. Left—Lattice work fabric made of strip felt sewed in position. Lower center—Strip felt plaited. Right—Perforated felt.

FULL-FASHIONED NARROWING DEMANDS

Accurate Settings

By M. C. Miller, M.E.
Mechanical Engineer, Manville, R. I.

◆ *Mr. Miller here ends his detailed description of the intricate movements of the knitting elements during narrowing and begins a discussion of the accurate settings involved.**

THE cam shown for the knock-over-bit motion in Fig. 51 (TEXTILE WORLD, March 26, page 29) is not really intended to cause the knock-over bits to perform any useful function during the narrowing. It just happens that when the camshaft of the machine is shifted to go into the narrowing motions, the cam that controls the knock-over bits for setting up comes under the rollers 6. In so far as the narrowing movements are concerned, the knock-over bits could remain fixed and immovable.

In view 15, Fig. 50, which shows the position of the parts at the end of the camshaft movement to 15, it will be seen that the needles and points have moved upward, thereby projecting the needle hooks upward between the sinkers. As the fabric, by having come in contact with the bottom of the sinkers, is prevented from continuing its upward movement, the needles are in position to insure that the fabric cannot fall off the needles as the points are later moved upward and out of fabric contact. The loops, therefore, are now safely transferred to the needles.

This upward movement of the needles and points could occur to a like degree, although usually and in this particular cam layout, as shown by the needle-and-point movement in Fig. 49 (Feb. 13, page 28), the points move upward faster and farther than the needles, thereby reducing the clearance between the lower curve of the groove in the points and the lower curved portion of the beards. This can be readily visualized by examining the needle-and-point register view in Fig. 49. It is not at all desirable that the difference in movement between the needles and points at this time be greater than noted, as beard injury may well result from an excessive difference of movement, which might well force the needles out of the groove of the points by causing the curve of the beard to ride on or contact with the lower curve of the point groove. While such harsh beard action would not interfere with the narrowing movement already performed, it might well cause a flattening of the lower curve of the beard, with resultant trouble later in pressing during knitting and subsequent narrowing operations.

It is of course necessary as quickly as possible to cause the points to move upward farther and faster than the needles, in order to get them out of the way for the subsequent knitting stroke, but such accelerated point motion should not take place until after the unflexing of the needles and points. While it is true such a slight unflexing has taken place in the movement of the needle from position 14 to 15, as shown in Fig. 49, it is not nearly enough to move the points upward safely much faster than the needles. The knock-over-bit movement shown in view 15, Fig. 50, is, as explained in the foregoing, not pertinent to narrowing.

Separating of Needles and Points

As the camshaft moves to its position 16, the needles move an immaterial distance upward, their important movement being away from the points, as shown in Fig. 49. By examining the needle up-and-down motion 4 (Fig. 51), it will be seen that the roller 4 continues to ride on the rest portion of its cam, so that no material up-and-down movement is transmitted to the needles. The upward movement of the needles shown in Fig. 49 is largely the result of the arcuate in-and-out movement of the needles due to their being hinged as described in preceding articles of this series. During this same movement to 16 (Fig. 51), the roller 2 moves down its cam decline, thereby transmitting to the needles a movement away from the points, which causes the needles and points to unflex.

The sinkers in this movement remain in the position 15, no further movement of the sinkers taking place during the succeeding and remaining movements of narrowing, as shown by Fig. 49. Their roller 3 continues to ride on the radial rest portion of its cam. The sinkers do move away from the needles just prior to yarn-laying on the knitting stroke following each narrowing.

In this same movement of the camshaft to 16, the points continue to move upward, as shown in Fig. 49. By examining this motion numbered 5 in Fig. 51, it will be seen that the roller 5 continues to move up its cam incline, thereby raising the points. The knock-over bits continue to move upward slightly, although, as previously noted, to no purpose in so far as narrowing is concerned.

In view 16, Fig. 50, which shows the position of the parts at the end of the camshaft movement to 16, it will be seen that the needles have moved away from the points a sufficient distance to permit the points to move upward, in order to get into a position to shed their loops on the needles as quickly as possible, there having been no appreciable movement of the needles upward. In this position, it is almost impossible—although it would be desirable—to set and adjust a machine so that the points do not come in contact with the beards; although if the points do contact with the beards harshly, it is usually due to an over-press condition in positions 5 and 14, which should be corrected by

*Previous installments of this series on full-fashioned hosiery machines and their operation appeared May 31, July 26, Oct. 4, and Nov. 29, 1930; March 21, April 25, July 11, Aug. 8, Sept. 19, Nov. 28, and Dec. 26, 1931; and Feb. 13, March 26, May 21, and July, 1932. Clippings of Mr. Miller's first series of articles on the past, present, and future of knitting mechanism are no longer available, but the articles are all included in Mr. Miller's book, "Prinicples of Knitting," recently published by the McGraw-Hill Book Co., 330 W. 42nd St., New York.

lightening the narrowing press by an in-and-out adjustment of the narrowing machine. Any contact of the narrowing point with a needle beard is liable to be detrimental to the life or accurate straightness and alignment of the beard with its needle eye. It will be seen in view 16, Fig. 50, that the fabric remains at the bottom line of the sinkers and that the sinkers have made no further movement.

The subsequent movements of the needles from this position have no further bearing on loop depositing, the needles assuming consecutively their peculiar 17 and 18 positions only for the purpose of producing selvages. As we are not discussing selvages in this article, we are not particularly concerned with movements 17 and 18, other than to state that when the rollers reach a position some distance after they assume the position 17, the camshaft is shifted and continues to shift until sometime after the position 18.

During this entire time of camshaft shifting, it is of course necessary that all cams used for narrowing conform in shape to the cams used in knitting, in order that the six motion rollers can readily move off their narrowing cams during the shift of the camshaft and continue their movement to position 1 on their respective knitting cams. An example of this likeness of cams during the shift is shown in Fig. 51, in which the shape of the knitting cam for the needle up-and-down motion 4 is drawn in dot-and-dash lines. It will be noted that this conforms exactly to the shape of the narrowing cam for motion 4 at and during the camshaft-shift period, the time of such shift also being noted on this drawing.

The resultant needle and sinker setting, due to shifting the camshaft and in this manner aligning the various rollers with their knitting cam, is shown in view 1 of Fig. 50, in which the dotted lines represent the position of the elements in 18, while the dot-and-dash outlines represent the position 1 for knitting, with the solid lines representing the position of the elements in the position 1 after having shifted into the narrowing. It will be noted that in the return from narrowing to knitting the needles have continued moving upward and slightly toward the press. This movement toward the press is not controlled by the needle in-and-out cams, but is the result of the regulator stitch motion discussed in preceding articles, which now takes over the setting of the in-and-out position of the needles. This setting determines the length of the next course of loops and is held during the entire period of yarn sinking. It will also be noticed that the sinkers, in preparing for the laying of the next course, have gone away from the needles in order to permit the yarn carriers (the yarn tubes of which project below the tops of the jack sinkers) to move endwise and so lay yarn for the following yarn-kinking operation. The narrowing machine has in the interval moved upward, out of the way.

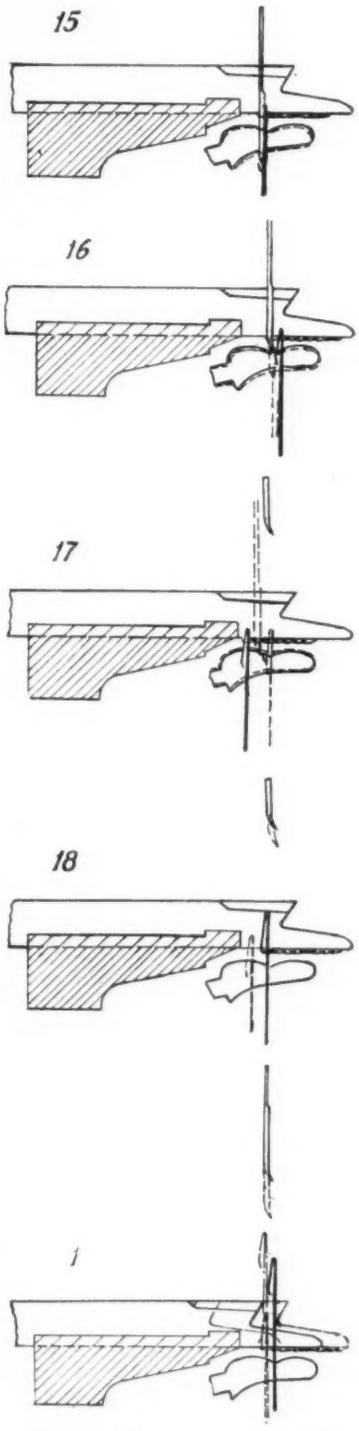


Fig. 50. From position 15 to 1, completing cycle

Accurate Settings Essential

There are many accurate and important settings of the elements during narrowing. One of the most important is the endwise setting of the narrowing machine and point units so that the points are exactly central between the sinkers. Care should be exercised to see that no sinker which functions between the narrowing points at any setting is bent, particularly at its nose, as sinkers would be likely, if so bent, to move their respective points out of line. It must be remembered that the side clearance between the points and sinkers is only a part of a thousandth of an inch.

The position of the needles must be straight and as central between the sinkers and in as exact alignment with the points as it is possible to plier them. The crimped or lower curve of the beard must be well rounded and the beard must be properly open from its shank—and yet not open any farther than is necessary for the purpose of knitting. The importance of maintaining the lower curve on the beard is not appreciated by many operators otherwise skilled in the art; when, as a matter of fact, it is as important as needle straightness. This is true for the reason that this farthest projecting curve of the beard is the first portion of the needle to come into point contact; and if it is well curved, the tendency is to align the needle with the point, even though the needle is itself out of line with the point or the beard is slightly out of line with its needle eye. If the beard, from a distance about two-thirds down from its hook end, forms a relatively parallel line with the shank of the narrowing point, the side swiping or moving of the beard by the angularly shaped open groove of the point is considerably interfered with. Unless the beard is guided into the point groove, imperfect narrowing results, even if the transfer point does finally register and lock in its respective needle eye. In such register failure of the point and the beard, the needle beard will either be torn off upon the subsequent downward movement of the needles or it will fail to release its loop fully to the point, in either case seriously interferring with the continued production of perfect narrowings. All the above is as important for the first or loop-lifting engagement of the points and needles as it is for the second or loop-depositing movement.

Long Draft vs. Regular

RESULTS OF SOME RECENT MILL TESTS

By Joseph C. Cobb
Lancaster (S. C.) Cotton Mills

A SOUTHERN mill equipped with 30-year-old spinning frames recently considered the possibility of modernizing its equipment, but did not wish to spend very much money and was not in a position at the time to buy new frames.

The management decided that if it could have long-draft equipment put on these frames so they could spin from 40s to 45s filling from single 2.50-hank intermediate roving, using 1-in. local cotton, the investment would be a paying one. It was reasoned that the long-draft equipment would pay for itself in a few years and then the complete frames, including the long-draft attachments, could be thrown away when the time was ripe to buy new frames. This was all providing, of course, that the yarns in question could be spun successfully and economically from the roving specified. When this desire had been made known, three machinery manufacturers proceeded to equip several of the frames with their special type of long draft.

After each company had equipped a frame, the mill began to make tests to compare the long-draft machines with the regular spinning for ends down, breaking strength, quality of yarn, variation in number, and front-roll speed. On its regular frames the mill was spinning 40s to 45s yarn from 6.00-hank roving doubled. The results are listed in the accompanying tables.

Some of the machinery manufacturers are making long-draft equipment for fly frames; and it may be that, by making 2.50-hank roving with long-draft equipment on the intermediate, as well as using long-draft spinning, the 43s filling can be made more successfully.

It may be said in behalf of Type 2, on which the end breakage was so high, that this equipment was of an entirely different nature from the others and was more or less of an experiment by the manufacturer. In other words, the mechanical part of this long-draft equipment has not been entirely perfected.

It has been demonstrated that 40s to 45s filling can be made from full-inch American cotton in a 2.50-hank or heavier roving. Early experiments with single roving failed to show quite so even a filling as did the conventional type of spinning with double roving. Therefore, manufacturers have been reluctant to attempt to make these numbers of filling out of single roving for fear of hurting the quality of their goods.

However, the above tests showed that the filling had fewer thick and thin places than yarn produced on the conventional type of spinning with double roving; and the average breaking strength of filling made of 2.50-hank intermediate roving was satisfactory.

Therefore it is the writer's opinion that in as much as one of the greatest objections to making filling of single roving has been overcome—that is, the unevenness of the yarn with the accompanying danger of lower quality of the cloth—it is only a matter of time before the mechanical defects will have been overcome and mills will be saving thousands of dollars by cutting out at least one process of fly frames and making their filling with single roving. However, it must be understood that this is merely the writer's opinion. The reader is at liberty to draw conclusions of his own from the above tables.

TYPE 1. Long draft, running 2.50-hank roving, single creel. Twist per inch, 27.01. Front-roll speed, 108. Draft 17.5. Yarn number, 42.50s.

Date in July, 1932	Yarn Number	Breaking Strength	Number Ends Down	Hours Run	Number Spindles
1	43.10s	30.1	340	10	224
2	43.10s	32.0	75	5	224
13	42.55s	27.3	182	5	224
14	43.48s	26.2	1467	10	416
15	42.37s	28.0	1561	10	448
16	42.02s	30.0	425	4	448
18	41.32s	31.1	676	10	224
19	42.02s	26.3	655	10	224
Aver. or total	42.50s	28.8	5381	64	2432

Ends down per 1000 spindles per hour, 34.

TYPE 2. Long draft, running 2.50-hank roving, single creel. Twist per inch, 27.01. Front-roll speed, 108. Draft, 18.2. Yarn number, 42.50s.

1	42.92	29.7	381	10	224
2	43.10	26.1	120	5	224
18	41.32	29.3	977	10	224
19	41.84	26.3	495	10	224
20	40.49	30.0	647	10	224
21	41.15	29.2	717	9	224
Aver. or total	41.8	28.4	3337	54	1344

Ends down per 1000 spindles per hour, 46.

TYPE 3. Long draft. Running 2.50-hank roving, single creel. Twist per inch, 26.81. Front-roll speed, 101. Draft, 17.7. Yarn number, 42.50s.

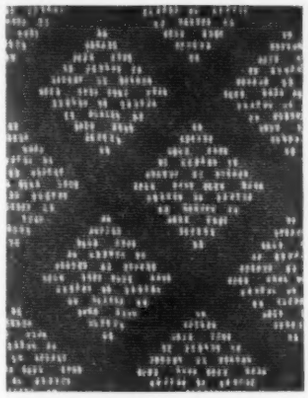
11	41.67s	30.5	446	5	504
12	42.37	29.5	945	10	504
13	42.55	29.0	431	10	252
14	41.49	29.1	317	10	252
15	42.02	28.3	382	10	252
16	40.49	36.3	139	4	252
18	41.84	29.3	412	10	252
19	41.15	29.2	303	10	252
Aver. or total	41.7	30.1	3375	69	2520

Ends down per 1000 spindles per hour, 19.

TYPE 4. Regular spinning, with unweighted middle roll, running 6.00-hank roving double. Twist per inch, 27.01. Front-roll speed, 108. Draft, 14.7. Yarn number, 42.50s.

1	43.10s	29.0	155	10	224
2	42.55	31.0	42	5	224
13	43.48	29.2	163	5	224
14	42.37	29.3	560	10	416
15	41.67	30.0	404	10	448
16	40.65	36.3	124	4	448
18	42.37	31.2	195	10	224
19	42.55	30.0	155	10	224
20	41.84	31.0	395	10	208
21	42.02	29.3	521	10	208
Aver. or total	42.26	30.6	2714	84	2848

Ends down per 1000 spindles per hour, 11.3



Rayon Crepes

FINISHING METHODS EMPLOYED TO OVERCOME VARIOUS DEFECTS

By Edward F. Jordan

FINISHING of rayon crepes may give rise to various defects, as the writer discovered when first called upon to process a fabric of this type. How some of these difficulties were overcome forms the subject of this article.

The fabric dealt with consisted of a viscose filling and a cellulose acetate warp; the filling was highly twisted, while the warp contained only a few turns per inch. Shrinkage measurements showed that the fabric contracted in both warp and filling when immersed in a boiling soap solution. The gray fabric measured 41½ in. in width and had to be finished to 36 in. A warp shrinkage of 8% was allowed from gray to finished fabric. The cellulose acetate was to be fully delustered.

A machine was available which had been used for creping cotton fabrics. This consisted of a wooden vat containing live steam injectors and also a closed coil so that the liquor contained therein could be heated to the boiling point and maintained at that temperature. The cotton fabric had been creped by passage in rope form through the vat filled with boiling water; but a preliminary trial showed that when the rayon crepe fabric was treated in the same way as the cotton fabric, it became covered with crack marks which took the form of creases running in all directions. No satisfactory method could be found for removing these creases, and it was concluded that the passage of the fabric through the vat would have to be in open width. This proved a difficult problem, but eventually it was solved by running the goods under a partially submerged reel, whereby creping occurred before the fabric got into the rope form in which it left the vat.

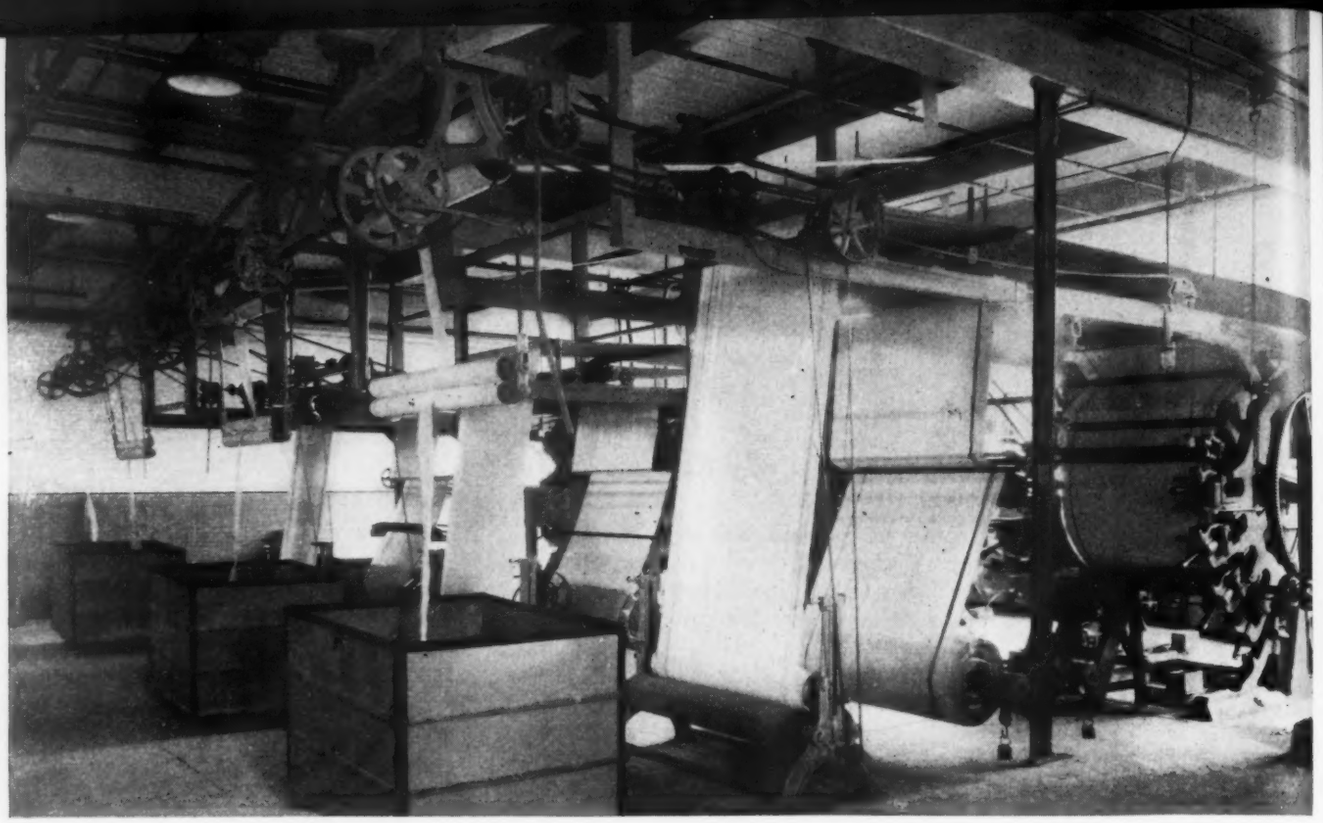
By maintaining the goods at open width in the early stages of creping, creasing was avoided; but when the fabric was later finished on a tenter to a width of 36 in., it was found to contain innumerable small gaps or openings, each of which ran parallel to the warp and extended about $\frac{3}{16}$ in. in length. These were not noticeable when the fabric was wet before tentering and were obviously caused by the stretching in width. Measurement of the width of the fully creped wet fabric showed it to be but 30 in. instead of the final 36-in. finished width. Also, the crepe appearance of the fabric before finishing was very coarse. It was concluded that with such a quick method of effecting creping, the filling threads lost their twist too rapidly so that they caused gaps to appear irregularly between groups of the warp threads. Efforts to carry out the creping process in liquors at 95, 90, and 85° C. soon showed that these procedures were not satisfactory, since no delustering of the cellulose acetate took place. Finally this continuous method of creping was abandoned in favor of the so-called stringing process.

The new method involved folding each piece of fabric in the form of a book and hanging it vertically by means of a large number of strings attached to one of the selvages. Each piece of fabric strung in this manner was let down into a rectangular vat of boiling soap liquor in such a way that the fabric was completely submerged (the strings were fastened to a horizontal wooden pole which rested across the top of the vat). The liquor consisted of a 1% soap solution containing exactly 0.1% of phenol (this percentage was calculated on the volume of liquor), and was maintained as near the boil as possible without foaming over the top of the vat. The process of creping and delustering was complete within 1 hr., and the pieces were then lifted into another vat of cold running water where they were left for about 30 min. so that the soap and phenol could be washed away. Afterwards the pieces were dyed in the usual manner in a reel machine with suitable viscose and cellulose acetate dyes to a solid shade. In the wet state the fabrics were then hydro-extracted, opened out to width, and finally tentered to 36 in. with the least possible tension on the warp.

Processing the goods under these new conditions showed that the crepe effect on the wet fabric was much finer than that produced by passage through the vat of boiling liquor in open width. A reason for this was found. Fabric in the book form had the layers of fabric pressing against each other with a reasonable amount of pressure. Thus movement of the filling yarns was restricted. This insured a finer crepe appearance, but at the same time it obviated the formation of crease marks. There was also a smaller width shrinkage—the wet fabric measured 32 in. in the filling, whereas in the former method it had contracted to 30 in. During tentering this fabric developed "gaping," but to a smaller extent.

The finished fabric continued to be rejected on account of "gaping," and it seemed impossible to correct this in the creping process itself. Then it was dicovered that "gaping" could be just eliminated by tentering twice instead of once. For this, the wet dyed fabric was tentered to a width of 34½ in., thoroughly steamed, and then tentered to 36¼ in. During storage the width contracted to 36 in., as desired.

From time to time efforts were made to use the creping machine formerly used for cotton fabrics, since it was considered that a better output would be obtained by the continuous method which it allowed. But no success was obtained. When the temperature was high enough to secure delustering of the cellulose acetate, the defect of "gaping" always appeared in the finished fabric. The method has, therefore, been abandoned once and for all.



A printing unit of moderate size can be made to pay

Profits in Printing . . .

ARE THEY POSSIBLE TODAY?

By Myron W. Alling

ONE often hears the assertion that there are too many printing machines and that half of those in place ought to be scrapped. It is not strange, therefore, that for the most part textile executives, in searching for ways to increase the profits of their plants, have given little consideration to the installation of a printing unit. A thorough investigation of the present status and future outlook of the industry convinces the writer that what we need is not fewer printing machines but a better distribution of them, and that certain types of plants would find it a profitable venture if they were to get into the printing business at this time.

Supporting this belief is the decision made recently by a concern which has been remarkably successful in the dyeing of piece goods. Executives of this company came to the conclusion that dyeing alone could not be depended upon to keep the plant in a prosperous condition forever; therefore, it was essential that it be prepared for the future, as well as to fill any gap that might develop due to the loss of one or more lines of work. It was decided, furthermore, that printing was the one thing that could be applied to the further development of the types of work which this plant was in the habit of handling, and also attract new business, not only in printing, but in dyeing, because of the many new contacts that would be made in both those classes of work.

In the bleaching, dyeing, and printing industry the millions of dollars which have been paid out for unreasonable claims, loss of time due to trivial bickerings, uncalled for and exacting demands, and the hammering down of prices to a point apparently lower than production costs have brought about a situation which nobody can correct except the converter himself. As a result, more than ever before converters are now running their own finishing plants. And in a case of this sort, it is easy for a converter to operate a printing unit and to be reasonable with himself. Naturally, he will not present himself with claims when he falls down on the quality of his work; he will not bicker with himself as to whether or not he will accept his own goods; and he will not be so exacting if he has to solve his own problems of production. His costs will surely be lowered with this more reasonable attitude toward getting finished goods to the manufacturer.

Opportunity for Cotton Mill

The opportunities in printing are even greater perhaps in the case of a cotton mill, or other type of plant, which

Table I—List of Printing Equipment, with Cost

PRINTING AND AGEING EQUIPMENT

Equipment	New	Second-Hand
1 Printing machine 8-color	$6,862.50	*$2,600.00
1 Printing machine drive	712.50	.....
1 Printing machine motor	1,557.00	1,557.00
1 Printing machine spreader	225.00	.....
1 Back frame	1,728.53	.....
8 Back-gray cans	1,250.00	.....
6 Printed-fabric cans	4,800.00	.....
1 5-hp. motor	200.00	.....
1 Ager	7,600.00	500.00
2 Kettles	1,700.00	1,700.00
1 Kettle motor	200.00	200.00
1 Open soaper	6,950.00	**1,500.00
19 Open-soaper cans	4,450.00	.....
1 Open-soaper motor	1,500.00	1,500.00
1 Forcing jack	900.00	50.00
1 Ager motor	1,000.00	1,000.00
1 Rubber blanket	235.00	235.00
60 Yd. lapping	120.00	120.00
1 Polishing lathe	310.00	310.00
100 Copper rollers	3,335.00	2,972.50
5 Color tubs	79.00	79.00
2500 Yd. back grays	400.00	400.00
10 Lb. water of ayer stone	8.50	8.50
5 Lb. doctor stone	1.75	1.75
1 Doz. doctor blades	14.00	14.00
1 Doz. files	12.00	12.00
2 2-qt. copper dippers	11.00	11.00
2 1-qt. copper dippers	9.50	9.50
2 1-pt. copper dippers	5.50	5.50
2 ½-pt. copper dippers	4.40	4.40
2 ¼-pt. copper dippers	4.00	4.00
2 ⅛-pt. copper dippers	3.20	3.20
2 1/16-pt. copper dippers	2.90	2.90
2 ½-oz. copper dippers	1.70	1.70
2 ¼-oz. copper dippers	1.40	1.40
1 Brush winder	1,650.00	50.00
Total	$47,844.38	$14,853.35

STARCHING AND FINISHING EQUIPMENT

Equipment	New	Second-Hand
1 Starch mangle	$1,625.00	†$3,750.00
6 Cans and cone drive	1,080.00	.....
1 Compensator	325.00	.....
1 Swing frame	6,600.00	.....
1 Swing-frame housing and heater	6,000.00	.....
1 Winder	500.00	.....
1 Motor	1,500.00	1,500.00
1 5-bowl calender	5,300.00	††2,200.00
1 Calender motor	1,000.00	.....
1 Calender chasing rigging	600.00	.....
Total	$24,530.00	$7,450.00

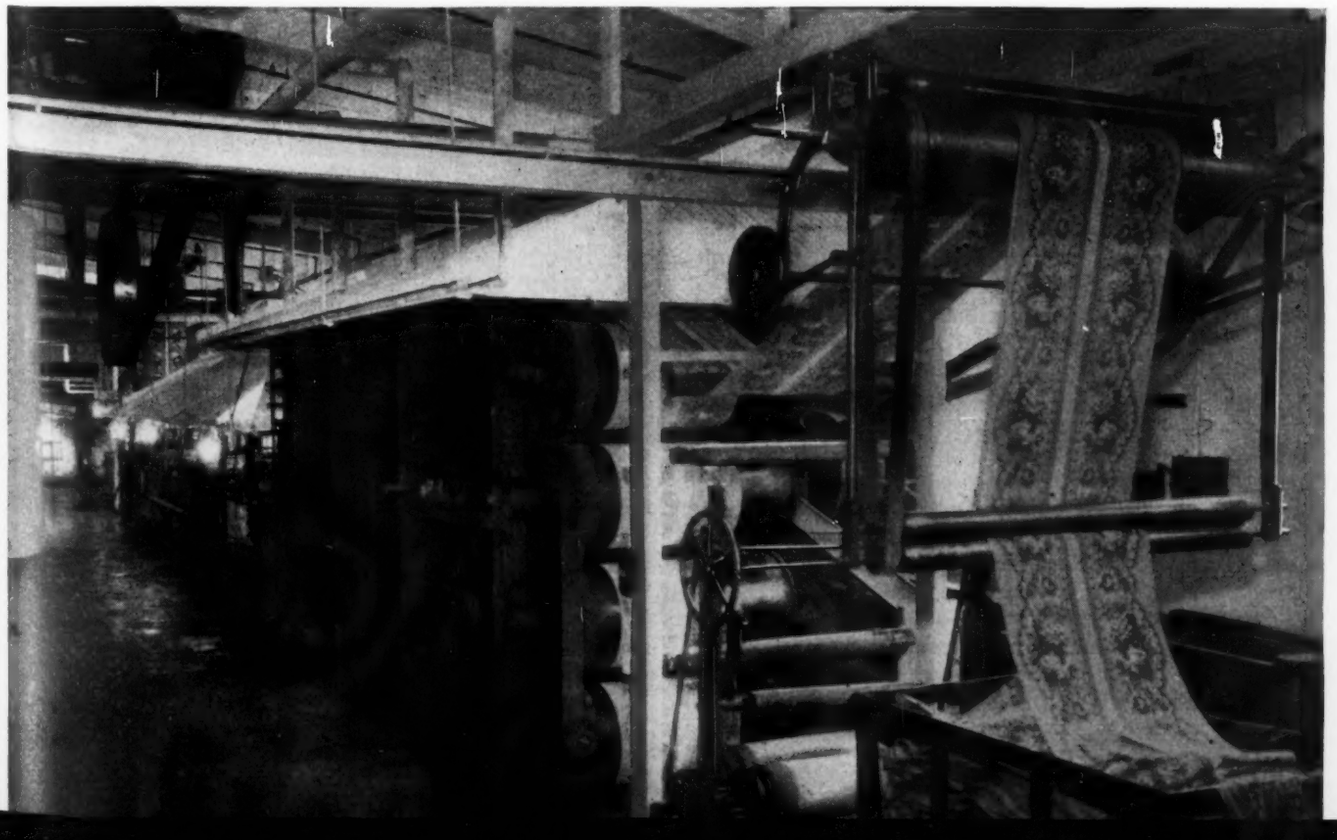
*Including drive, spreader, back frame, back-gray cans, printed-fabric cans, and 5-hp. motor. **Including cans.
†Including cans, compensator, swing frame, housing, and heater.
††Including motor and chasing rigging.

manufactures and sells its own finished goods direct. Take for example, a mill which weaves, bleaches, and naps outing-flannel material, and which has an opportunity to supply the demand of a large mail-order house for printed outing flannels. The mill has no printing equipment and therefore is obliged to look around for the nearest reputable printing works. The executives of both plants exchange visits to arrange about engraving, prices, freight or trucking, patterns, and as many other details as they are able to foresee. After several weeks, it is possible to start production. The average price for printing has been agreed upon at 2.625c. per yard, of which 0.569c. represents the net profit to the printing plant and a corresponding loss to the mill which gives it the work. Besides this loss, there is the expense of trucking and traveling, and the loss of time due to complications of production and holding up of decisions.

Some mills believe that they do not do enough printing to warrant the installation of a printing unit. This may or may not be true. It hinges largely upon the ingenuity of the executives to develop markets.

Two questions are of vital interest to the mill executive who is contemplating the installation of a printing department. They are: What profits can be expected

Minor changes facilitate handling both cotton and rayon fabrics



from a printing unit? What will it cost to install the equipment required?

The Profits

Below are two sets of cost figures on a particular style of fabric, one for a mill doing its own printing and the other for a mill having the work done outside:

Mill Doing Its Own Printing	cents
Storage	0.0326
Layout and sew	0.0238
Bleach	0.1735
Pull out and dry	0.0619
Nap	0.9000
Wind	0.0182
Print	0.8770
Age	0.1243
Soap and dry	0.2347
Color cost	0.7500
Soften on starch range	0.2664
Fold and pack	0.2105
Freight allowance	0.0250
	3.6979

Mill Having Printing Done Outside	
Above figure	3.6979
Wind	0.0182
Profit paid to outside mill	0.5690
Freight or trucking	.....
	4.2851

It will be noted that the difference between the two costs is more than 0.5872c. per yard. These figures are based on the following subdivided costs:

	Mill Doing Own Printing, Per Cent	Mill Having Printing Done Outside, Per Cent
Labor	16.50	16.50
Material	36.50	36.50
Overhead	24.37	27.47
Profit	22.63	19.53
	100.00	100.00

The items included in the overhead, mentioned above, are as follows: general expense and supervision, interest, insurance, taxes, depreciation, laboratory labor and supplies, power, steam, water, mill-upkeep supplies, repairs, back grays, materials for rehandled goods, compensation insurance, and heating.

With a printing unit including only one printing machine 3,000,000 yd. of cloth can be printed in a year. Based on the savings of 0.5872c. per yard by having one's own unit, there would be a saving of $17,616 on an investment of anywhere from $22,000 to $72,000 according to whether the machinery is bought new or second-hand.

Equipment and Its Cost

In Table I is a complete list of equipment necessary to install a printing-machine unit of one machine, along with the average cost of both new and second-hand equipment, as calculated from figures furnished by three manufacturers of textile machinery and several dealers in second-hand equipment. Of course, all prices are subject to change; but at this time prices are low, and there is an abundance of second-hand machinery for sale. By buying a few pieces at a time and storing them, if necessary, until a complete range of machinery is gathered together, worth-while savings can be made in the purchase price of equipment. With certain classes of work it is necessary to have machinery for starching and finishing the cloth. The equipment usually needed is also included in the tabulation.

To equip a printing plant there are expenses other than for machinery. These may be summed up as follows:

Cost of erecting machinery	$1,500.00
Freight expense	1,000.00
Cost of dyes and chemicals for two months	3,750.00
Cost of salaries and wages for two months	3,361.70
Engraving of 66 copper rollers	1,782.71
Sketches of 20 different patterns	700.00
	$12,083.10

The reason for including the expenses of the last four items, is to allow sufficient time for the payment of bills by customers for the work done during that time.

Labor Requirements

The weekly labor requirements, wages, and salaries for operating the printing, color shop, ageing, and washing machinery listed in Table I, including supervision of the starch range, would be approximately as follows, based on a week's production of 60,000 yd.:

	North	South
Boss printer	$60.00	$50.00
Back tender	35.00	20.00
Gray tender	22.50	10.00
Swing tender	22.50	10.00
Ager and washer operator	35.00	17.50
General helper	22.50	10.00
Colorist	45.00	35.00
Assistant colorist	30.00	17.50
General supervisor and solicitor	115.39	115.39
	$387.89	$285.39

The weekly labor requirements and wages for operating the starching and finishing machinery would be approximately as follows, for 60,000 yd. of goods:

	North	South
1—Starcher on starch range	$27.50	$11.00
1—Helper on starch range	22.50	10.00
1—Calender operator	27.50	11.00
	$77.50	$32.00

The floor space required for each machine in a printing department follows. Height of all rooms is 15 ft.

	Width in Ft.	Length in Ft.
1 Printing machine	20	60
1 Ager	16	50
1 Open soaper	16	80
2 Color kettles	8	16
1 Forcing jack	10	20
1 Polishing lathe	10	6
200 Copper-roll storage room	20	50
1 Color-shop	20	48
1 Brush winder	20	20
1 Starch range	20	135
1 Calender	20	20

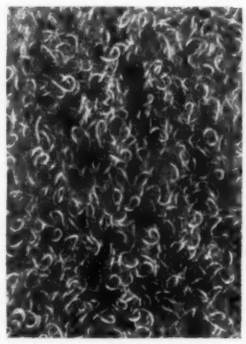
Plan of Operating

The following plan of operating is suggested for a mill which sells its own printed goods direct.

3,000,000 yd. per year.
60,000 yd. per week (2-week-shutdown allowance).
25,000 yd. to the pattern.
6,250 yd. to the combination.
2.4 patterns per week.

Finally the writer wishes to offer the following thought: Any company which is desirous of going into printing has a much better chance of success if it adds something new to the printing industry, instead of adding more to the stock of the same old line of work. Illustrations of work which are practically new and should be extensively developed are printing of wool goods, printing of outing flannels, and printing of napped goods for lining men's gloves. In addition there are many more classes of work that must be left to the judgment and ingenuity of the manufacturer himself.

Bouclé Transparent Velvet



Magnified four times

ALL-SILK LOOP-PILE CONSTRUCTION

By Maurice N. Roux

INQUIRIES received by our Questions and Answers Department indicate that the manufacture of bouclé transparent velvet is not widely understood. We have therefore asked Mr. Roux to write the accompanying article discussing its construction.

CERTAIN new types of frieze or bouclé transparent velvet have recently appeared on the market. This fabric has the appearance of a very fine terry cloth, but differs from terry cloth in that the loops are on one side of the fabric only. It is particularly suited for evening wraps and related uses.

The cloth, when finished, has a rather dull appearance, due to the loops reflecting the light from many different angles. This fact does not detract from its value or beauty—rather it reacts to the contrary, since the trend has been away from the bright, high-luster transparent, almost invariably made with a rayon pile.

Frieze or bouclé transparent is at present made entirely of silk; but as the season advances and the demand comes for different and lower-priced constructions, we shall probably see this fabric made with schappe or rayon pile. There are certain advantageous possibilities in the latter, since the use of rayon allows the dyeing of two-tone effects. No doubt there will be variations other than the two mentioned, but these seem to be the most logical.

The length and uniformity of the loops are dependent upon the pile let-off motion and, to a certain degree, upon other adjustments. All velvet looms have a positively driven pile let-off motion with an interchangeable gear, by means of which the pile is regulated to the desired height. Most velvet-loom manufacturers are prepared to supply information in regard to the length of pile a given gear will deliver for any given weave.

Cam or Head Motion

The fabric in question may be woven on any velvet loom suitable for the higher types of pile fabrics. Either a cam or head-motion loom can be employed. In the illustrations given herewith both cam set-up and chain are shown at Figs. *2* and *2a* respectively. Fig. *2a* indicates that eight rows of chain are necessary to control four pile harnesses. This is a departure from ordinary silk-loom usage, where each harness is controlled by a single jack and only one row of chain is necessary for each jack.

Fig. *7* illustrates one type of harness hook-up on velvet looms using a head motion. For purposes of illustration only two jacks and one frame are shown. It will be noticed that both jacks *J* are connected to the frame by means of two chains *C* running through pulleys *P*, which are in turn connected to the harness cords.

The action of the harness is as follows: If two raisers of the chain contact both jacks at the same time, the harness will be raised to the highest point—indicated

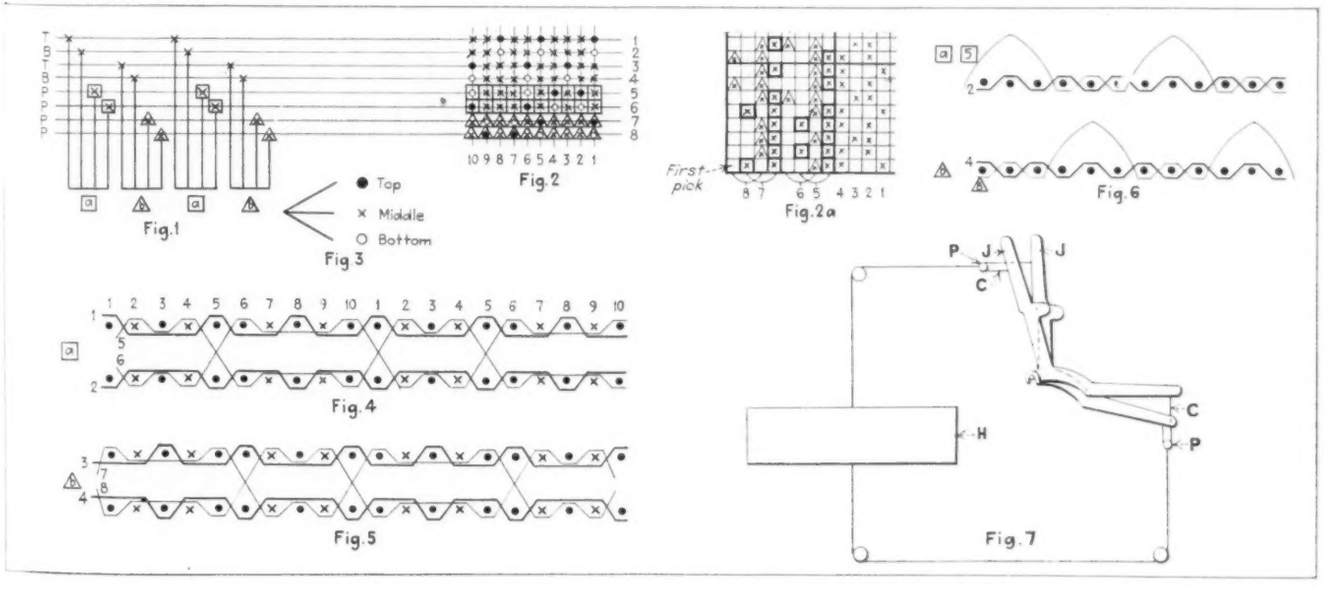


Fig. 1 Fig. 2 Fig. 3 Fig. 2a Fig. 6 Fig. 4 Fig. 5 Fig. 7

by a solid dot in the cam set-up. If both jacks are allowed to drop at the same time, the harness will move to the lowest point—indicated by a circle in the cam set-up. When one jack is lowered and the other raised, the harness will be moved to a point midway between the highest and lowest positions—indicated by *x*. This movement of the harness through only one-half the distance before moved is made possible by the chains *C* and the pulleys *P*. When the jacks are turned in opposite directions, only one-half the distance moved is transmitted to the harness, the other portion being absorbed by the action of the chains.

The ground harness is controlled in the usual manner, only one jack being used for each frame. Fig. 2*a* shows that alternate jacks are used to control each pile frame. This is necessary to allow sufficient clearance for the chains when the loom is running.

Figs. 1 and 2 illustrate the draft and cam arrangement for a bouclé transparent. It will be noticed that the ground harness frames are alternated. This is done simply because the draft is more nearly straight, complicating the work less for the weaver and the drawer-in. Fig. 3 shows the signs which indicate the three positions a thread may occupy in the weave. The pile threads are distinguished by squares and triangles. Figs. 4 and 5 represent cross-sections of the cloth as it appears in the loom, and Fig. 6 shows cross-sections of the cloth after it has been finished. It will be noticed in Figs. 4 and 5 that certain of the picks are marked as *x* and that no threads except pile threads pass over these picks. This is the principle underlying the formation of the loops, for it can be seen that if these picks were removed there would be no means of holding the pile in place.

Only one take-up roller is used in weaving, since to use two would necessitate cutting the pile, thus defeating the end in view. Therefore, as the piece is delivered from the loom, it in no way resembles the finished fabric. The finishing operation may be done as follows: The cloth is stretched on a table several yards in length, and the picks marked *x* are pulled from the back of the cloth. In order that the picks to be removed may be identified, they are not woven with the inside edge but are bound only with a few threads in the temple edge. Removing the picks is, of course, a hand operation and is usually done by two persons, one at each edge of the cloth, alternately cutting and removing the picks.

Construction

It was stated above that certain picks are removed in the finishing process. This leads to the conclusion that the finished pick count must be increased in the loom by the number of picks removed. Fig. 4 shows that there are ten picks in one repeat of the weave, and in Fig. 6 (the finished cloth) there are but six picks in a repeat. Consequently, if the finished pick count is to be 124 per inch, the pick count in the loom must be increased to 206 per inch.

The warp dressing is as follows: pile warp, 6,000 ends of two-thread silk, crepe twist, arranged one end left twist, one end right twist, two ends per heddle in the harness; ground warp, 6,000 ends of two-thread silk, either crepe or grenadine twist, arranged four ends left twist, four ends right twist, one end per heddle in the harness.

Picks per inch in the loom, 206.

Picks per inch finished, 124.

Reed, 74 dents per inch, four ends per dent.

Finished width, 38 to 39 in.

Knit-Under

By Paul W. Niles

◆ *Underwear fabric has long been a matter of little interest to the designers, with few exceptions. Indications are that the situation may be changing. Increased popularity of cotton garments for men and women may be partly responsible for the trend toward originality, since such articles seem to call for and lend themselves to variations in pattern. Mr. Niles has jotted down some random ideas about the types and methods of design which may prove useful in such a movement.*

FOR some time knit-goods buyers have called loudly for new ideas in bathing suits, sweaters, and sport wear. More recently the demand for novelty has extended to underwear. Designers may shortly be looking right and left for new ideas and snatching at anything which may carry a suggestion for a new style.

A short time ago a woman buyer of a store remarked to a salesman that the collar on a child's suit which he was offering illustrated just what she had in mind for a new women's underwear garment. The collar was about 4 in. wide with alternate tuck and plain stitches to set off the plain body. It was made from 18s yarn on 10-cut Wildman ribbed striper. The needles were Nos. 80 and 81, 36-gage, 42-hook. The pattern card allowed the cams to throw in or out of work, as for stripes; but the pattern consisted of tuck stitches, rather than color.

A bird's-eye stitch along this line can be made on eight feeds—three tuck, two plain, two tuck, and one plain. The pattern card can be arranged to knit eight revolutions of the three plain feeds, which makes about 1 in. Then it can be made to throw in the five tuck stitches. The tuck is made by removing the little shoulder pin in the collar, which moves the dial stitch cam. While this pin is out, the cam is always on the tuck. The changing of the pattern affects the cylinder cam only when the yarn is cut out. Fig. 1 shows a pattern of this character.

Often in developing something different, success is encountered by reviving some popular style of the past. The old waist-line design may make a go today. The body of the garment might consist of a bird's-eye or any other effect for 12 in., then about 6 in. of plain, and finally a change to the bird's-eye again. Twenty years ago the women wore this pattern in a style of heavy-weight but today it could be made of rayon in a light ripple or a three-tuck-one-plain with colors. One can conceive of a step-in with a plain-stitch cuff to fit or be loose around the leg, with plain form-fit waist, and neck of any style.

Success may be encountered by enhancing brassieres with a novelty yarn or something like a brushed-out spun rayon run in between the stitches without being knitted in, just as elastic is laid in corset goods and tinsel is laid in children's caps. In the latter case, it is interesting

wear Design

SOME SUGGESTIONS FOR NEW STYLES

to note, the needle-out pattern is useful in affording a clear view of the tinsel through the stitches. Fig. 2 shows a brassiere fabric developed somewhat along the lines suggested, in three colors. Another example of color and fancy stitches in women's underwear, produced at little cost, is shown in Fig. 3.

Men's shorts and union suits might be made as in Fig. 4, with a soft, spongy stitch and plain ribbed finish to give shape and fit. The fabric shown was made on a plain and tuck automatic with eight feeds of 2x2 Swiss-ribbed stitch, and the pattern was set to cut the required length at plain stitch. Another style for the same uses is shown in Fig. 5 and was made with a 2x1 cylinder and a dial needle between two cylinder needles. The latter is really more absorbent than the 2x2, but it is much heavier when made with tuck stitches.

Panels were at one time made in underwear, but there were no colors in these garments at the time. A panel is made on a plain machine using long-latch needles—either dial or cylinder. As many needles with long latches as are needed for the width of the panel are placed in the cylinder. Every other raiser cam is ground down far enough to hold the stitches on the long latches. The dial cams can be set back the desired distance to hold the stitches in case the dial needles are used for the panel. In rayon underwear a two-tone pink or a pink and light blue could be used, either color assigned to a panel according to the feeds used. The two pink yarns, for example, could be placed every other feed, the darker being on the feed that holds the stitches and the lighter on the cast-off feeds, giving a panel of the dark pink down the body of the lighter color.

A threatened comeback in women's cotton underwear may prove a boon to mills equipped with eight-feed striper jersey machines, cut either 10 or 11 to the inch, even if it proves necessary to change the cylinder. On many old jersey machines a ribbed effect can be obtained by alternating long-latch and regular needles around the cylinder and filing down the proper cams to prevent the needles rising high enough for the long latches to clear the loops. A waist line can be inserted by throwing out the long latches with the pattern chain and knitting a few inches of plain jersey. The long latches can then be thrown into action again. Under this arrangement all eight feeds are working all the time, with the exception of during the few inches of plain made with four feeds.

On such machines colors can be used to advantage in diagonal stripe designs. The patterns which are possible are almost endless in number, as many arrangements of the long-latch needles can be made and needle-out effects can be employed. By setting the chain to change at the proper points, the colors can be arranged in checker boards or rectangles. Again, three long latches can be held for a lace effect in a panel a few inches wide, or one long latch can be held for three stitches in a panel.

Designers in other lines look at many seemingly inappropriate things with a view to developing new ideas. Underwear-fabric designers might do well to follow suit. For example, a few weeks ago two little girls on the Wildwood, N. J., beach wound old putties around their legs—just to be different, perhaps, from the other tots. Who knows but what their playful notion might offer the germ of an idea for a new style?

FROM THE STYLIST'S SCRAP-BOOK

Fig. 1. (upper left)—Bird's-eye design. Fig. 2. (upper right)—Brassiere fabric in three colors. Fig. 3 (center)—Color and fancy stitches in women's underwear. Fig. 4. (lower left)—Very soft, spongy stitch for men's underwear. Fig. 5. (lower right)—Fabric more absorbent than Fig. 4.

Slashing and Weaving

DISCUSSED BY TEXTILE OPERATING EXECUTIVES OF GEORGIA

◆ *In the opinion of Norman E. Elsas, president of the Cotton Manufacturers Association of Georgia, the meetings of the Textile Operating Executives have supplied information which in the case of some mills has made possible an annual saving of 20c. per spindle.*

TECHNICAL associations are performing an educational function of primary importance, declared Norman E. Elsas, secretary of Fulton Bag and Cotton Mills, Atlanta, Ga., in an address before the Textile Operating Executives of Georgia on Sept. 23. The discussions of mill problems, he said, by stimulating thought toward improved efficiency, are worth much to the members of such associations and their mills.

Mr. Elsas, who is president of The Cotton Manufacturers Association of Georgia, ventured the statement that some mills have profited to the extent of 20c. per spindle as the result of savings in manufacturing costs which could be attributed to information or suggestions developed by meetings of the Textile Operating Executives of Georgia. Based upon a more conservative appraisal, however, and taking only 10c. per spindle as the average annual saving, Mr. Elsas estimated that the cotton mills of Georgia have been saved $300,000 per year, directly and indirectly, through the effective application of ideas released and stimulated by the semi-annual meetings of this organization.

D. R. Senn, Chairman

The meeting was called to order by E. H. Rogers, agent, Fulton Bag and Cotton Mills, of Atlanta, general chairman of the association. Following the address by Mr. Elsas, the discussion of slashing and weaving problems was started, with D. R. Senn, superintendent, Enterprise Mfg. Co., Augusta, Ga., acting as chairman.

Changes in outdoor temperature and humidity were said to have a noticeable effect upon the drying of warps in the slashing process. E. H. Rogers, of Atlanta, stated that on a cold day, with an open outside door about 15 ft. from the slasher, he had heard condensation falling like rain in the cylinder. Sometimes more heat is required in the early morning to dry warps sufficiently, and this situation is not provided for by automatic controls alone. One member has found it advisable to increase the pressure early in the morning and run the slasher at the usual speed; while another member, whose slashers are equipped with controls, has slowed the speed while running first two warps in the morning.

Several members recommended the practice of painting the top squeeze rolls with white lead every three or four months to prevent the rolls from rusting under the jacket. Walter Dillard, Jr., assistant superintendent, Sibley Mfg. Co., Augusta, Ga., said that good results have been obtained by painting top squeeze rolls with red lead every six months. The red lead, it was said, contains a chemical which tends to prevent rust. Another member suggested the idea of dipping rolls in a lead bath —or tin plating—for the same purpose.

Reporting on the experience of his mill during the eight-year period since temperature controls were installed on the slashers, George S. Elliott, superintendent, Pacolet Mfg. Co., Plant No. 4, New Holland, Ga., declared that 7 to 8% better-running work had resulted from use of the controls. In the installation at his mill, Mr. Elliott explained, steam does not pass from one cylinder to the other, but each cylinder is provided with a separate line. Slashers have automatic controls on the large cylinder only. In order to get the proper moisture content in warps as they come from the slasher, according to Mr. Elliott, it is advisable to establish definite temperatures and speeds for the various styles and post these on a chart, or placard, at the slasher to guide the operative in making changes from one style to another. For good-running work, a moisture content of 7½ to 8½% is considered desirable. Another suggestion by Mr. Elliott was that the slasher man be thoroughly acquainted with the principle upon which the automatic controls operate and that, as a means of accomplishing this, the device be dismantled for him to see exactly how it functions. Controls for size vats were recommended by several members.

The following table represents a summary of answers to the question of what is considered a good run-out on the back of slashers for indigo warps:

Yarn Numbers	Ends Per Set	Numbers of Beams	Total Pounds Left on Warp Beams
8s	1890	5	5.60
8s	1960	5	5.10
14s	2196	6	5.82
17s	2492	6	6.09
19s	2568	6	5.28
21s	2378	6	5.10

Yardage counters installed both on the front and back of slashers, according to J. C. Platt, agent, Aragon (Ga.) Mills, provide a simple means of determining the amount of stretch in the yarn in slashing. He has found that approximately 1% stretch occurs between the squeeze roll and the pulling roll on the front of the slasher. Another member had installed yardage counters driven by surface contact on the beams, both front and back, and found a total stretch of 1.85 to 2%, thus showing more stretch than when measured from the delivery roll.

In reply to a question from the floor, W. D. Massey, superintendent, Peerless Cotton Mills, Thomaston, Ga., stated that his mill has used tapioca starch exclusively for about five months with fair success. The saving in cost was said to be substantial, for, whereas 160 lb. of

starch per mix was previously used, only 106 lb. of tapioca is now required. Another member reported, however, that tapioca is not so uniform in quality from lot to lot as corn starch. He cooks tapioca the same length of time and at the same temperature.

Weaving Problems

The weaving discussion was opened with a consideration of the advantages and disadvantages that result from the use of shuttles holding larger and longer bobbins. Good results were obtained by changing from an 8-in. to an 8¾-in. bobbin, the increase being in length only, running on coarse numbers up to 14s, according to V. J. Thompson, superintendent, Callaway Mills, Inc., Manchester, Ga. It was necessary to put on longer boxes. The supply of 8-in. bobbins was not lost, as this size is still in use on numbers finer than 14s.

Another member reported that he is experimenting with a shuttle that is $\frac{1}{16}$ in. deeper and slightly wider, but with no increase in length; and results so far seem to be satisfactory. Another improvement was said to be offered by a shuttle with a higher back wall, which conforms more closely to the angle of the shed, thus permitting the use of a larger bobbin. The representative of a shuttle manufacturer reported that an increasing call for shuttles with higher back walls had been observed by his company. In reply to a question, he said that the back wall is usually $\frac{1}{16}$ in. higher than the front wall in shuttles of this type, and that the shuttle with a high back wall shows no more wear than other types.

The question of what moisture content is most desirable for good weaving on coarse warp yarn under 20s, was discussed to some extent under one of the slasher problems. A. E. Massey, superintendent, Exposition Cotton Mills, Atlanta, Ga., considered 8% about the proper moisture content; and in order to check on this, he follows the practice of weighing samples and determining the bone-dry weight of these samples twice a day for each slasher. Another member stated that he checks the moisture content on every set, both day and night, and recommends a 7% moisture content for all processes.

Several members who had purchased shuttles not equipped with eyes and had installed old eyes from discarded shuttles, were somewhat skeptical as to the advisability of this practice. Chairman Senn stated that it had been necessary to file out the bottom of the shuttle in order to obtain a satisfactory fit for the eye. One member suggested that it might be advantageous to save old shuttle eyes and then send them to the manufacturer to be fitted into new shuttles.

The number of loom stops per hour on various standard constructions was found to range from 0.26 to 0.86 stops per loom. On constructions with average yarn numbers around 30s, 64x60, it was found that 0.75 to 0.85 stops per loom per hour is about normal. On coarser sheetings, however, the maximum was said to be about 0.75 stops per hour.

In mills where looms were equipped with feelers, equally as many or more loom stops were said to be caused by filling breaks as by warp breaks; but in weave rooms where feelers were not used, warp-yarn breakage was found to be responsible for a higher proportion of all loom stops. Chairman Senn reported that warp and filling are about equally responsible for loom stops when running 24s warp and 22s to 36s filling. Another member, running 25s yarn in both warp and filling, reported 44% of loom stops due to warp breaks. In one instance where feelers were not used, 70% of all loom stops were said to be due to warp-yarn breaks.

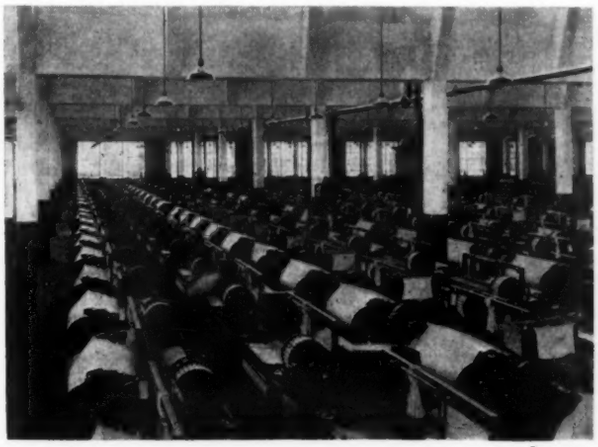
Local conditions were found to determine, to a large extent, the most efficient method of arranging sections. The consensus of opinion was that the loomfixer, because he is the more skilled and therefore higher paid, should not be required to do the smashing. Mr. Elliott said he preferred the larger sections with a man to tie on warps. The loomfixer comes along after the warp has been tied on and sets the cams and harness. In the event that a larger number of warps than usual should be running out about the same time, he would furnish another man to tie on warps.

Since the installation of automatic spooling and high-speed warping in his plant, declared Mr. Rogers, trouble from kinks in warp yarn has practically been eliminated. Loom stops resulting from this trouble, which formerly represented 25% or more of the loom stoppage, have been reduced to not more than 2% of such stoppage.

An experiment to determine the effect of long-draft spinning upon weaving efficiency was made in one mill. Eight warps from regular spinning and eight warps from new long draft, both made from $\frac{7}{8}$-in. cotton, were observed in the weave room. The long-draft warps were found to have only about 60% as many loom stops as the regular-draft warps; but while the long-draft yarn showed about 10 to 12% better breaking strength, a peculiar thing was that the cloth made from this yarn did not show much greater strength than that from yarn spun with regular draft.

Machine-shop and power-plant problems were considered at the afternoon session, which was presided over by Comer Turley, mechanical superintendent, Pepperell Mfg. Co., Lindale, Ga. Methods for checking orders for repairing broken parts were described by George S. Elliott, superintendent, Pacolet Mfg. Co., Plant No. 4, New Holland, Ga., who stated that overseers in his mill are supplied with small printed pads for use in making out repair orders. These orders are made in duplicate, a carbon being provided with the pad, and both copies of the order are sent to the machine shop with the job. When the repair work has been completed, the master mechanic enters on the order form the costs applying to the particular job. The original is then sent to the accounting department, and the duplicate is returned to the department of the mill with the repaired part. After the accounting department has made the necessary bookkeeping records, the original order is returned to the master mechanic for his file.

The use of an electric welding outfit was recommended by Mr. Turley, who stated that it would pay for itself in two or three years, and that he finds this type of equipment very satisfactory for welding crankshafts.



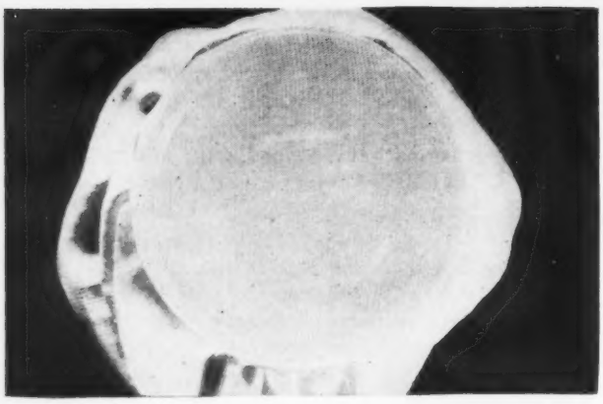


Fig. 1. Useful method of mounting hosiery

Tell-Tale Photographs

OF HOSIERY DEFECTS

By Herbert C. Roberts

A METHOD of mounting defective hosiery on an embroidery hoop is illustrated in Fig. 1. This photograph is about one quarter the true size. The nature of the defects are easily seen; yet it is difficult for the untrained eye to tell just how they were caused. That is to say, it is hard to tell whether they were due to a knitting fault or whether the cause lay in the yarn used in the knitting. The fabric is enlarged in Fig. 2, and here it is found that there are two defects—one caused by knitting (*B*) and one by imperfect yarn (*A*). But sometimes a further enlargement is needed, particularly when it is necessary to prove one's assertion to someone else. For example, the enlargement of defect *A* in Fig. 3 shows convincingly that the root of the trouble is a thread of abnormal diameter composed of too many filaments, loosely twisted together. Often it may prove desirable to unravel the hose and photograph the thread separately, as in Fig. 4.

In another instance a stocking showed an unevenness in color. It had dark streaks resembling crow's feet. In order that a good look at the defect might be had, it was observed under the microscope; but it was found that, viewed through this medium, the unevenness in color disappeared, showing that the goods were evenly dyed. The irregularity appeared to be due to a differenee in the reflection of light from the various parts of the goods. A photomicrograph, as seen in Fig. 5, tells the story. Here irregular stitches are seen. They follow no one course or wale, but extend to several of each. This is obviously a bruise or injury to the goods received in the dyehouse. The goods may have been crushed by a heavy open dye-net or they may have been extracted too long, with the result that a crease has been pressed in to the goods.

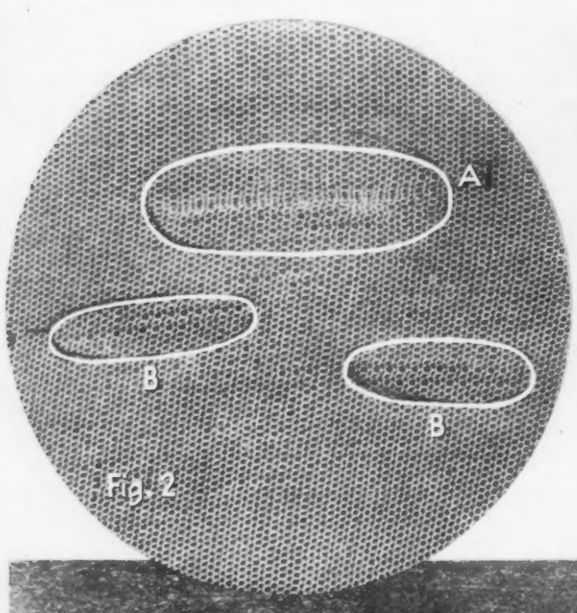


Fig. 2

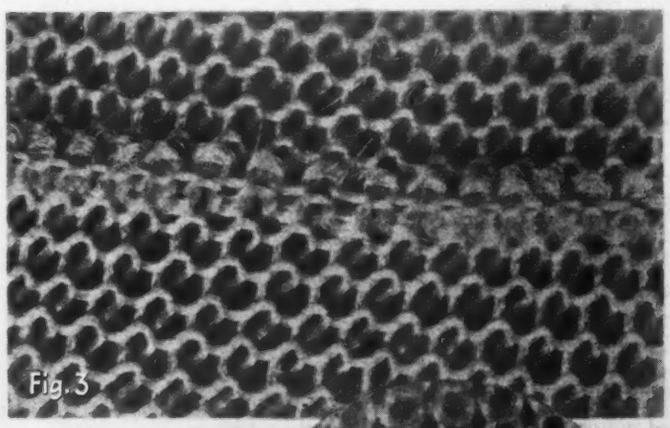


Fig. 3

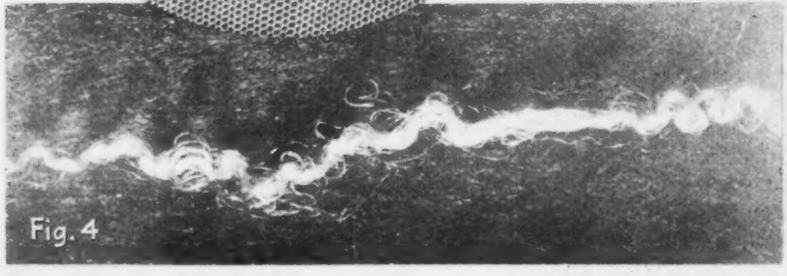


Fig. 4

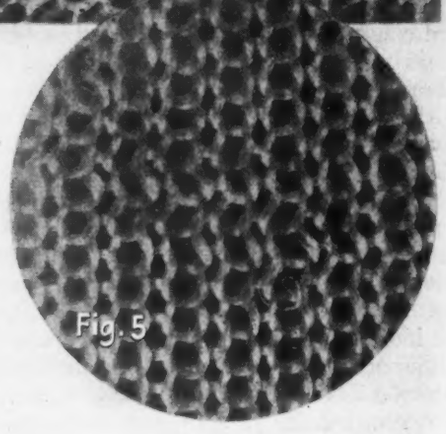


Fig. 5

Fig. 2. Defects due to heavy yarn and sleazy knitting. Fig. 3. Enlargement of defect "A" of Fig. 2. Fig. 4. Thread which caused the trouble. Fig. 5. A bruised stocking

Market Expansion

RESULTS FROM DURENE'S SUCCESSFUL PROMOTIONAL EFFORTS

EASILY the highlight of the year in the activities of the Durene Association of America has been the development of new markets for fabrics of Durene standard mercerized yarn. While the organized cotton yarn mercerizers have done much of late toward strengthening their position in the various fields of market stability, improved relations with yarn buyers and more widespread acceptance of the Durene name, their star accomplishment was at the merchandising end.

Executives and members of Durene Association

The association made further progress toward merging all its activities into direct promotion as the best practical means of getting sales results. This called for vertical effort; first, in pushing yarn sales to the manufacturing groups, seeing that merchandise was properly styled and identified as Durene and aiding manufacturers in opening new markets; and second, in building Durene merchandise acceptance among the manufacturer's customers.

The association opened many new markets during the current year. "Ribcord," the fabric which was developed early in spring by Blackstone and Stallman, from Durene, became a race-horse in the apparel field. Under the fashion guidance of the Durene Association, nearly 20 apparel uses were developed for this fabric and further new markets are expected to be opened for the coming Palm Beach season. The fabric is probably one of the most versatile ever developed in the industry.

"Ribcord's" success had a good psychological effect on the whole range of Durene yarns, and gave impetus to promotional effort in other markets. The year has seen a growing call for knitted fabrics made of these yarns, thanks to the attractive and novel merchandise offered. Many new knit stitches were developed, notably the tuck type, all of which have been well received in the outerwear and underwear industries. The number of knitters using Durene was substantially increased as result of market expansion effort. Developments in the children's knitwear field were especially important; outerwear mills offered a broad range of hats and scarfs and accessories and extended their lines of knitted dresses; hosiery consumption was also augmented.

While strengthening its position in summer footwear, Durene also entered the hitherto negligible field of winter shoes. During the early fall, smartly styled shoes of Durene and leather were winning good consumer response in the quality stores of the metropolitan cities.

This activity is particularly notable in view of the individual's home budget curtailment problem and the prevailing business hesitancy. The beauty of the merchandise together with its style appeal excited attention outside of the trade, and was warmly welcomed by the fashion editors of the consumer press.

The mercerized cotton yarn group enters the winter season with much confidence. Prices have taken an upward trend; indeed, Durene levels started their advance before the major pick-up in the primary market. The price increase announced in mid-summer by the Aberfoyle Mfg. Co. served as a tonic not only to manufacturers of Durene but to the textile industry generally. This step by Aberfoyle was in line with the efforts exercised by the Durene Association toward maintaining the quality standard; the organization's policy has been that quality could be maintained only by holding prices at levels permitting some degree of profit.

Discussing the Aberfoyle advance, other members of the association pointed out that the prevailing belief has been that a company faces two alternatives in a falling market: Either it must balance output with price which means reducing quality, or it can go out of business. It was emphasized that many textile houses have gone out of business, while others have curtailed to the point of nominal existence. Aberfoyle, however, showed a new and sounder way; and the trade responded.

Several other important developments marked the year for the mercerizers. In January, a new contract was worked out by manufacturers of both Durene and other yarns, in cooperation with Ernest L. Starr, director of the association, which aimed to curb the "contract-jumping" of some of the yarn buyers. In July the association took over all the merchandising and promotional activities originally initiated by the Mercerizers Association of America. At that time also the director sent out a request that merchandise made of Durene carry the label "Made of Durene" instead of the single word "Durene," explaining that the unit term was inaccurate when applied to the finished product. The word Durene today is practically 100% accepted by retail stores, and name infringements have become negligible.

Cotton-Wool Cassimeres

MEETING PRICE WITH ATTRACTIVE FABRICS

By George R. Stevens

◆ *In this article Mr. Stevens offers a rather complete guide to the manufacture of the fabric under discussion, taking up the important points involved in stock dyeing, conditioning, blending, oiling, spinning, weaving, and finishing.*

DURING the hard times in woolen manufacture and the demand for low-priced but popular and attractive fabrics for both men's wear and boys' suitings, there has been evidence that woolen mills, especially in the South, are interested in the class of goods having a stock mixture consisting largely of cotton waste and good wool shoddy, with a minimum of good wool. The writer knows from years of practical experience in the manufacture of this grade of fancy cassimere that very attractive fabrics can be made up from such a mixture. Consumers are surprised that the consistency is largely cotton.

Without some previous experience in the manufacturing of this grade of "woolen," it is rather difficult for a manufacturer to get out a really attractive line of satisfactory cloth. He must bear in mind that mere cheapness will not produce orders in any large volume—the fabric must have both style and character. Also a soft and smooth finish or handle is necessary. One must always bear in mind that cotton has no fulling properties and that, in general, the methods of handling all-wool or wool and shoddy will prove far from satisfactory when applied to stock composed largely of cotton.

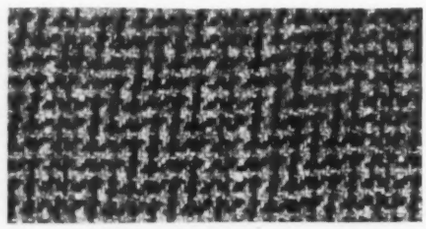


Fig. 2. Successful fabric woven as in Fig. 1

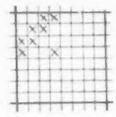


Fig. 1. Weave for cotton-wool cassimere

The weave in Fig. 1 and the fabric in Fig. 2 illustrate a cotton-mixed cassimere which was made by the writer a number of years ago and had a very satisfactory run.

The stock blend for white and light shades on mixtures was made up as follows: 60% of white peeler comber waste free from speckiness, 20% white garnetted yarn waste of good one-half-blood grade, and 20% of a medium-staple white wool of good one-quarter-blood grade. Care was taken to secure uniformity of staple. A small percentage of long staple, and in some cases even a somewhat coarser grade, will not spin into a smooth, level thread.

The blend for black and dark shades was as follows: 50% of white peeler comber waste, 25% of good shoddy carded fine, and 25% of medium-staple white wool of good one-quarter-blood grade. However, slightly stained wool can be used in all dark colors, and such material can always be bought at a discount.

The boss dyer should seek to avoid matting or felting by too much boiling. A circulating machine will be found to handle the stock most satisfactorily and give the best results throughout carding and spinning. Care should be taken to select dyes for the cotton which will stand up well in the fulling and scouring processes of finishing.

It was the writer's custom to open up the various colored cotton stocks by running them through an opening picker and then to store them in the stock room for a few days until called for use in the picker room, the object being to let the fiber regain its natural amount of moisture. A certain amount of conditioning is necessary also in the colored wool and shoddy stock; but as wools do not pack so hard and absorb moisture more readily, it is simply necessary to store them for a few days until they are required for blending.

The picker man should consult with the carding overseer regarding the oiling and blending of the wool, shoddy, and cotton, because if cotton stock is very moist, it is almost impossible to prevent speckiness in the yarns, which is the very worst thing that can happen in the fabric under discussion or any other fabric.

When the fabric shown in Fig. 2 was being produced, it was our custom to weigh out the necessary amount of the dyed or white wools as called for in the blend mixture, mix them in front of the burr picker, run the lot through, and weigh out any percentage of shoddy required in the batch to have it in readiness for blending in the full batch. Usually a layer of wool was laid down first on the blending floor, a layer of the shoddy stock was scattered as evenly as possible over the wool layer, and the scattering was continued with alternate layers of wool and shoddy. On each layer a sufficient amount of oil emulsion was sprinkled as evenly as possible, and this was beaten into the stock to insure more even distribution. When the batch was completed, it was run through the mixing picker once. After this the blended mixture was taken out and laid on the mixing floor again in layers alternating with the percentage of cotton called for.

The boss carder should examine the lot during the first of the run of the blended wools to make certain that sufficient oil has been put on in order that the cotton may absorb some of the moisture and that excessive fly in the carding will be prevented. He may find it advisable to increase the amount of emulsion sprinkled on the batch during the first run through. Experience will show the proper amount. Care must be taken to see that the cotton stock does not become too damp; and the carder and the picker man must cooperate very closely until such time as a satisfactory handling is attained.

Experience has shown that cotton-mixed roving

should be made a trifle finer or lighter in weight than is customary for an all-wool roving which is to be used for a corresponding size of yarn, because, if a cotton-mixed roving is drawn down too much, the resulting yarn will not appear so woolly.

The amount of twist to be inserted in the warp and filling is at first a matter of judgment, tempered by experience. The twist depends very largely upon the fiber length of the wool and cotton. It is essential, of course, that the warp yarns be of sufficient strength and elasticity to insure good weaving. As for the filling twist, the old Scotch superintendent under whom the writer gained his first experience in this class of yarn used to tell the spinning overseer, "Just put in the fillings as little twist as ye dare and then may be take out one-half a hole." The writer's notes on this fabric give the white warp and filling ten turns per inch and, for the black and dark colors, give the warp eleven turns and the filling ten turns. This depends somewhat, however, on the amount of rubbing which has been given the roving.

In most respects the spooling, dressing, and weaving require no special consideration beyond the ordinary careful attention which should be given the work throughout the departments of the mill. However, the writer has found both by experience and by experiment that there is some advantage in weaving cotton or silk warps and fine spun wool or worsted fillings with the loom whip roll elevated a trifle higher than the center of the heddle eyes. This seems to give a more wooly effect and softer handle to the goods.

After the finishing operations of burling and mending, the goods are napped on a straight one-way rotary machine equipped with fine wire. The back is given two runs; and the face, three runs—just enough to give a slightly woolly handle to the cloth.

In fulling, the goods illustrated by the writer were cramped sufficiently to shrink 1½ to 2 in. per yd. The running time averaged 1½ hr. The overseer should watch his fulling carefully, experiment with it, and keep a record of the various details and results for his guidance in handling future pieces. Particularly he must watch out for any signs of bleeding in the cotton dyes. A medium light soap, which is not too alkaline, is recommended for the fulling; and the writer has found that adding about 1½ to 2% of formaldehyde to the pails of soap before application to the goods is of advantage in preventing bleeding of the colors. Although the formaldehyde is an acid, it will not curdle any soap. It neutralizes the alkali, prevents stripping of the sensitive colors, and proves helpful in the washing of the goods.

For the cloth-scouring the water must not be too hot. The goods must not be allowed to lie in the soap between fulling and washing off, as the colors are likely to be stained under such conditions. After scouring and extracting, the goods should not be left in a hanging and dripping position, or the edges will become stained.

The goods should be dried at 58 to 59 in.—or possibly at greater width, depending mostly on the elasticity of the fabric. The goods are allowed to cool off and regain their natural moisture. They may be brushed somewhat before shearing. Very little steam should be used in pressing, because too much will cause the goods to develop a wiry handle and become too hard and stiff.

The layout of the fabric described was as follows: ends in warp, 2,500 (plus a listing of the same yarn); reed, 13/3; width, 64 in. inside listing; loom weight, 14 to 14½ oz.; finished weight, 12 to 12½ oz.; and yarn number of warp and filling, 3⅞ runs. The warp pattern was as follows: two black and three white, four times; one black and one white, three times; one black, three white, and two black, four times; and three white. The filling pattern was three black and two white. The weave was a four-harness twill.

The weave in Fig. 3 and woven pattern in Fig. 4 illustrate a new diagonal design which, although intended primarily for women's flannels and similar fabrics, may be made up in the same quality of yarn as the cotton-mixed cassimere just described. Several new fancy colorings in the popular shades, however, would have to be applied. The yarns are just about the correct size to make a flannel of 8½ oz. in weight and 56 in. in width. The layout will be 1,860 to 1,880 ends, plus listing. The warp would be laid in a loom 62 in. in the reed.

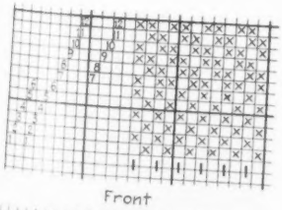
The finishing process would be practically the same as for the cassimere. The overseer should take care to avoid trapping of the fabric as heavily as the cassimere in the fulling mill, as to do so might cause the three-harness weave to show a puckered effect. Face and back would be napped to secure a woolly handle.

The reader will notice that the diagonal is made by a sectional arrangement of a plain weave and a three-harness twill, each weave showing a 1x1 hair line. The general effect is a zigzag diagonal which blends very well with the straight hair line. The drawing-in draft may be made with six, twelve, or more threads on each of the four different sections of the weave pattern.

The pattern may be used also as the foundation for lounging robes or dress flannels. The same idea could be adapted to men's-wear flannel suitings, but in straight lines instead of the diagonal.

The weave in Fig. 5 and the woven pattern in Fig. 6 show a 12x12 stripe pattern, 1x1 hair line for twelve threads and 1x1 diagonal zigzag line for twelve threads. The finished goods show stripes, about $\frac{5}{16}$ in. in width.

In a later article the writer intends to describe a special finishing treatment which may be used to soften hard-twisted yarn in cotton-mixed cassimere cloth.



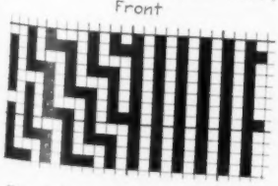


Fig. 3 (Above). New diagonal design

Fig. 4 (Below). Pattern resulting from Fig. 3

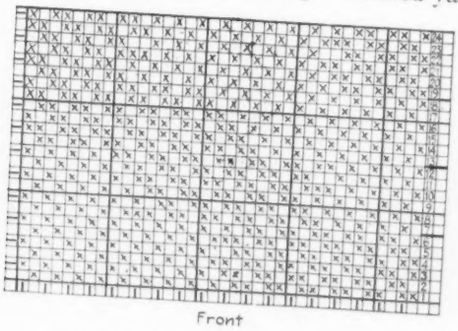


Fig. 5. Weave for stripe pattern

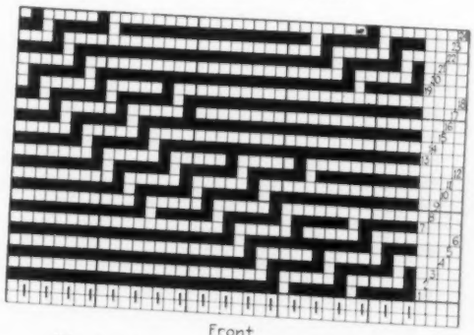
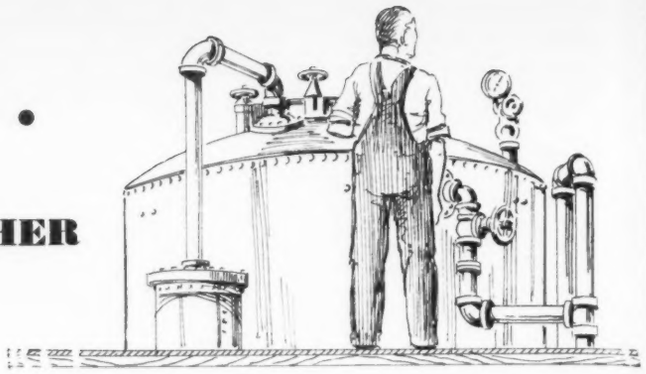


Fig. 6. Pattern resulting from Fig. 5

Detergents . . .

SOAPS, ALKALIS, AND OTHER COMPOUNDS



BOILING-OUT of cotton, scouring of wool, degumming of silk, and scouring of synthetic-fiber materials are typical of detergent processes in the textile industry. Due to lack of scientific data these, and other cleansing processes, are based almost entirely on empirical formulas. For the same reason, the methods commonly employed for the evaluation of detergents are far from satisfactory. Recently, however, a better understanding of colloidal chemistry has brought with it a clearer conception of detergent action. In this article will be given a list of some of the detergents employed in textile processing, together with a brief review of the present theories regarding the function of these compounds.

Detergents finding the greatest use in textile processes fall into two major classes—soaps and alkaline detergents; in addition, a number of other compounds, several of these of comparatively recent development, are employed to a more limited extent. Of the soaps, the sodium soaps manufactured from oleic, stearic, and palmitic acid are the most important. Potassium soaps, made from the same fatty acids, and formerly believed preferable for certain purposes, still find considerable application, but in many instances are being replaced by the former group. Ammonium soaps find a limited use for special purposes.

Alkaline Detergents

The alkaline detergents include sodium hydroxide, sodium carbonate, trisodium phosphate, sodium silicate, sodium sesquicarbonate, sodium bicarbonate, sodium biborate, ammonia, and sodium metasilicate. With the exception of sodium metasilicate, which only recently has been introduced to the textile industry, these alkalis are all well known to the mill man.

Some of the other compounds which are being used, or have been suggested for use, as detergents are polysaccharides, such as Physiol; highly colloidal clays, of which Bentonite is typical, fatty alcohol sulphonates, such as the Gardinols and, presumably, the Igepons; unsaturated compounds produced by the dehydration of oxidized paraffin, waxes, etc., sulphonated or chlorinated, if desired, and converted into water-soluble products by the action of alkalis or organic salts; and compounds produced by the interaction between alkylamines, particularly those containing a hydroxylated group, and aliphatic or sulphonated fatty acids. Several of these compounds show excellent resistance to precipitation by hard water; may be employed in neutral, alkaline, or acid solutions; and have other desirable properties which should make them well worth the investigation of the textile chemist.

Little is actually known about detergent action, with the exception that for the most part cleaning processes are known to be colloidal. In some cases, such as the kier boiling of gray cotton and degumming of silk, there is also actual chemical change. Zakarias has suggested that (aside from this chemical reaction) removal of foreign matter from textiles proceeds in three stages: (1) wetting out of the foreign matter and the textile; (2) dispersion of the foreign materials; and (3) removal of the dispersing medium by dilution (rinsing).

Evaluation of Detergents

The properties of a given compound which determine its efficacy as a detergent are not yet fully understood. In the case of soap, Vincent states that concentrated solutions of soap are good detergents, because of their extremely efficient wetting and emulsifying ability. Soap solutions possess fairly high viscosity and low surface tension, and this fact enables them to form stable films and foam. Because of the tendency of the soap to be absorbed at the solid interface, together with the attendant low surface tension and low interfacial tension of the solution against the solid surface, it can penetrate into fabrics.

Owing to the higher adhesion tension of such solutions, waxes, oils, and gums are displaced from cotton, wool, and silk by the solution.

The practice of adding some form of alkali to a soap solution to increase its detergency is not at all uncommon. It is believed that this added alkali suppresses hydrolysis of the soap, assists in lowering the surface tension of the bath, and serves to adjust the pH value of the bath to a suitable range to stabilize the suspension or emulsion formed. The author last quoted gives it as his opinion that the dosage and general procedure in the use of the alkali is a matter of more importance than the selection of a particular alkali.

This belief, however, differs from that held by many other authorities.

Further Research Needed

Attempts to determine the detergent value of soaps and other compounds by purely chemical methods fail to give significant results. Physical-chemical methods, such as determination of lathering power, measurement of surface tension, determination of the Congo Rubin number, and determination of protective-colloid action give results which in many cases coincide with those obtained in commercial practice.

Further research is needed, however, before entirely satisfactory methods for the evaluation of detergent power can be developed.

Worsted-Card Grinding

SPECIAL PRECAUTIONS FOR FINE WOOLS

By Frederick B. Hudson

SHARP card pins are essential for fine wools. These wools are slightly matted when they arrive at the worsted card, due to their excellent felting properties, and this causes the card pins to become blunt and make neps. Neppy slivers and low tearages can be prevented by skillful card grinding, which should take place after about 80 or 90 running hours for fine wools.

Standard practice varies in worsted establishments with regard to the attachment of the emery to the grinding rollers. Some firms have their emery glued on to the rollers, while others employ emery fillet, which is attached to the rollers by clamps. Grinding rollers with glued emery coverings can be regarded as being absolutely true, while the clamped emery fillet does not reach such perfection. On the other hand, the fillet worn in grinding the doffer, can be used for polishing the pins of the main cylinder after the initial grinding.

The construction of the card rollers also has to be considered in card grinding. When iron rollers are used, the surface is true and level; but after a few years running the fillet tends to sag and creep. It is advisable when tuning up a worsted card for fine wools to examine the clothing and see if the edges of the fillet are worn, because in a very short time worn edges start to overlap. When overlapping clothing is ground, the uppermost fillet has its keenness removed.

This may be remedied if taken in hand by a skillful carding engineer, and the roller can be made to perform useful work for many years to come. The worn card clothing is examined and pushed back by hand to its original place and the roller run point-first against the emery roller for about two minutes to remove all straggling pins. Should the card clothing be stretched and have a tendency to blister, the clothing should be removed up to the defect and re-wound on to the card under a correct tension. Surface creep rarely occurs on cards with wood rollers, because any tendency of the card clothing to move out of place can be remedied by the insertion of a few extra tacks.

On the workers and doffers—which have the opening actions to perform—sharp, straight needle-pointed pins are needed. The grinding given to the workers and doffers in fine worsted cards necessitates strong foundations, because good pins set in poor foundations are limp and useless after grinding.

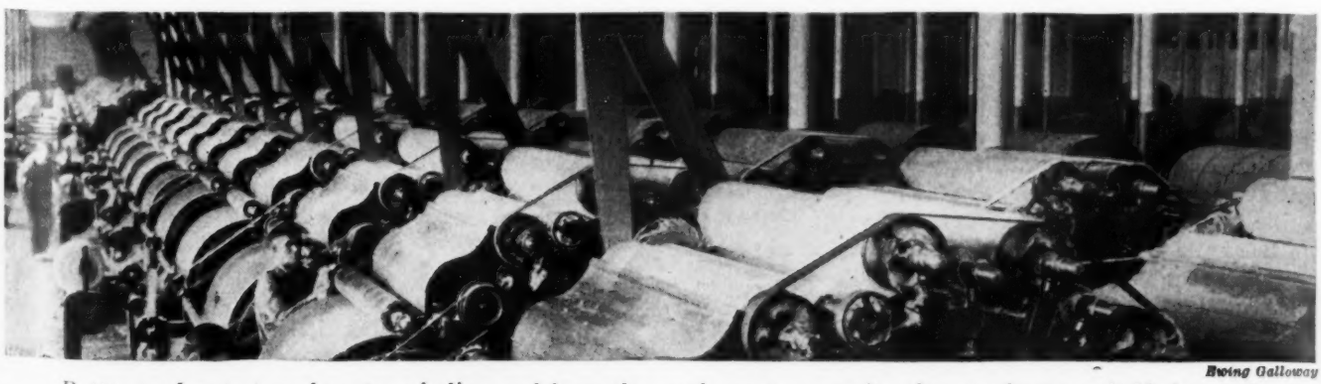
Stripping rollers need pins which are smooth rather than sharp. When the pins of the swift and strippers are too sharp, they tend to hold the wool below the knee of the pins, rather than have it in readiness for transference to the doffer. Another roller which should have smooth pins is the fancy, owing to its sweeping action and its ability to cause damage if its pins are rough.

Satisfactory grinding cannot take place on machines which have not been properly cleaned. It is impossible to get the desired point on card pins when they are clogged up with waste and grease. After cleaning, a thorough examination of the card clothing is necessary, and all the damaged places should be straightened out by means of pin pipes and pliers. Projecting pins should be trimmed level with the surface before grinding.

A good way to obtain accurate grinding of the workers is to set them to the emery rollers by means of a fine card gage, say 32s or 34s, and work them gradually against the emery roller by the same number of turns of the adjusting wheel at each side.

Heavy grinding should be avoided, as this causes a frictional heat to be generated between the emery and the wire, which produces sparks in grinding, and reduces the temper of the wire. Under the heavy pressure the pins are bent and loosened in their foundations. Improper grinding causes the pins to be hooked at the point, preventing accurate working and stripping.

Extra burnishing should be given to the strippers and fancy, in order to obtain smooth and level pin points. Certain carding engineers have been known to hold a piece of soft wood against the pins to give a final polish, while others polish their fancies by running them into the swift during grinding or treat with a burnishing roller.



Ewing Galloway

Better to devote two days to grinding and have the card run two weeks, than to devote a half day and find the pins blunt in 48 hours

FINDING AMOUNT OF RAYON AND OTHER FIBERS IN

Mixed Textiles

By P. Krais and H. Markert

USE of mixed yarns and fabrics other than those of wool and cotton, or of silk and cotton or wool, increases steadily. It has, therefore, become an important task to analyze such mixtures as exactly as possible. In this article are outlined the methods employed at the Deutsches Forschungsinstitut für Textilindustrie, Dresden, as described in a paper presented by the authors before the Textile Institute (England).

It is necessary first to remove all non-fibrous materials as completely as possible. Oils, fats, soaps, size, finishing materials, waterproofing materials, etc., must be extracted from the textiles by alternate treatments with ether, alcohol, enzymes, dilute acids, and dilute ammonia, as the case may be, even by benzol and carbon disulphide when rubber is present.

A microscopical examination has to follow in order to ascertain which kinds of fibers are present, using if necessary coloring and dissolving reactions applied to the decolorized fibers. The microscopic appearance and reactions of the various fibers are shown in Table I.

The next consideration is the correct calculation of the moisture content of each kind of fiber. The most rational way to do this seems to us to be, to weigh the sample after a 24-hr. exposure in an atmosphere of 60 or 65% relative humidity at ordinary temperature, and also to weigh the isolated fiber portions, having dried them at moderate heat, after the same exposure.

Now we come to the methods themselves. There are four kinds of dissolving methods which we use, according to the fibers we want to ascertain, following the principle that it is always best to get the more important fiber or fibers directly (insoluble), the less important ones indirectly (dissolved).

1. *Acetone.* If cellulose acetate is present, this can be dissolved with acetone as usual at ordinary or slightly elevated temperature.

2. *Caustic soda.* About 5 g. of the sample (exactly weighed) is boiled with about 30 parts of 2% caustic soda solution to 1 part of sample for ½ hr. in a flask fitted with a reflux cooler; then the mass is placed in a fine bronze sieve, washed out with flowing cold water, collected and dried. Wool and silk are dissolved; cotton, flax, and ramie remain undissolved.

3. *Sulphuric acid.* About 5 g. of the sample is put into a glass-stoppered flask, and sulphuric acid of 80% concentration is added (proportions as before), the mass is shaken vigorously for ¼ hr., then again every ¼ hr. After 3 to 4 hr. the mass is placed in a sieve and treated as under 2. All vegetable fibers are dissolved; wool and silk remain.

4. *Calcium thiocyanate.* A solution of the technical thiocyanate is made so that 100 c.c. of it contains 100 g. of the salt. About 200 c.c. of this solution is put into a flask with wide neck, fitted with a vigorous stirring device, warmed in a water bath to 70° C., then about 1.5 g. of the sample is added and the whole is heated in the boiling water-bath for 1 hr. under constant stirring (200 to 300 turns per minute). Then the mass is placed in a sieve and washed as under 2, after the excess of liquid has been pressed off well with a glass rod.

It is essential that the residues, after being dried, conditioned, and weighed, are also examined under the microscope in order to ascertain that the fibers one expects are really present and in a pure condition. Small percentages of the fibers which are supposed not to go into solution, are dissolved by these methods; and therefore we give Table II, showing the correction factors which must be taken into calculation, stated as percentage solubility of various fibers.

Supposing we have to analyze a fabric containing cellulose acetate, viscose, silk, cotton, and wool, we have the following manipulations:

(a) Cellulose acetate to be dissolved out with acetone; loss in weight = cellulose acetate. *(b)* Part of *(a)* is treated with sulphocyanate; loss in weight = viscose and silk. *(c)* Another part of *(a)* is treated with sulphuric acid; loss in weight = viscose and cotton. *(d)* Part of residue *(b)* is treated with sulphuric acid; loss in weight = cotton. *(e)* Another part of residue *(b)* is treated with caustic soda; remainder = cotton. *(f)* Part of residue *(c)* is treated with thiacyanate; loss in weight = silk. *(g)* From sum of cotton and viscose found under *(c)*, cotton found under *(e)* is subtracted, which gives amount of viscose.

TABLE I.

Fibers	Microscope	Iodine in Zinc Chloride	Diphenylamine in Sulphuric Acid	Acetone	Dye test*
Wool	Scales	Yellow	—	—	—
Silk	Not streaky	Yellow	—	—	—
Cotton	Bandlike windings	Blue	—	—	—
Viscose	Smooth or streaky	Blue	—	—	Pink
Cuprammonium	Smooth	Blue	—	—	Dark reddish Blue
Nitrocellulose	Slightly streaky	Blue	Blue	—	—
Cellulose acetate	Slightly streaky	Yellow	—	Soluble	—

*We recommend the use of equal parts of a solution of 0:1% Eosine (*Colour Index* 768) and of 0:1% Benzo Blue BX (*Colour Index* 472) in distilled water. Treat the samples for 5 min. with this mixture at ordinary temperature, rinse well and dry.

TABLE II.

Fibers	Acetone	Caustic Soda	Sulphuric Acid	Calcium Thiocyanate
Wool unbleached	0	100	0	2.5
Wool bleached	0	100	0	3.5
Silk (raw, degummed, weighted)	0	100	0	100
Cellulose rayon	0	6*	100	100
Cellulose acetate	100	6*	100	100
Cotton, raw	0	3.5*	100	4
Cotton bleached	0	3.5*	100	3
Cotton mercerized	0	3.5*	100	2

*Approximate.

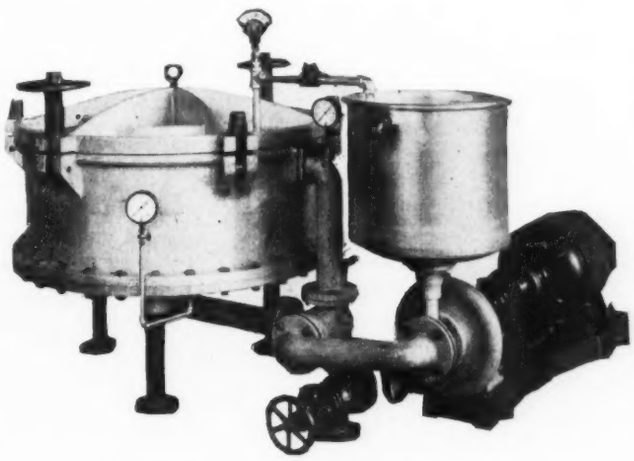
Silk Soaking

COST OF OPEN-TUB AND MACHINE METHODS

◆ *Recently our Questions and Answers Department received the following request: "Kindly furnish us wth comparative cost figures for open-tub and machine methods of silk soaking based on a production of nine bales per day." In the belief that it will be of interest to many others of our readers we are presenting in the following article a comparison of costs for silk soaking by these two methods. Data on open-tub costs were supplied by one of our regular contributors who is well-acquainted with the silk throwing industry; those on machine costs, by the manufacturer of one of the well-known types of mechanical soaking equipment. It should be pointed out, however, that these figures are offered as typical and not as absolute, since they would be affected by differences in cost of various types of open-tub and machine equipment, particular soaking medium employed, etc. They do indicate, however, the marked savings effected by use of machine methods.*

FOR soaking nine bales of raw silk (133 lb. each) per day twelve open tubs are required. Wooden tubs, constructed of 2-in. cypress dressed to 1¾ in., and made in pairs 2 ft. 4 in. long, 2 ft. 4 in. wide, and 2 ft. 6 in. deep, bolted and lined with iron bolts and brass flanges, would cost approximately $50 each. This would total $600 for the soaking equipment. These same tubs could be lined with Monel metal at a cost of about $130 each, making a total cost for equipment of $2,160.

Based on these figures, the daily fixed charges, assuming 275 operating days in a year, would be 42c. for the wooden tub and $1.24 for the Monel metal lined tub. In each case the daily labor cost would be divided as follows: $1.60 for one girl to open silk and prepare bundles for soaking; $2.50 for one boy to assist in opening bales, fill tubs, mix oil, tint, and run extractor; or a total of $4.10. The cost for the chemicals used in soaking would depend upon the type of silk thrown and the particular emulsion employed. A typical formula for one bale (133 lb.) of silk is as follows: 10 lb. of oil at 12½c. and 4 lb. of soap at 8½c. This equals $1.59 a bale, or $14.31 for nine bales. For soaking the nine bales of silk, approximately 900 gal. of water would be required at a cost of 90c.



Circulating-type silk soaking machine

Comparative Cost of Silk Soaking by Open-Tub and Machine Methods

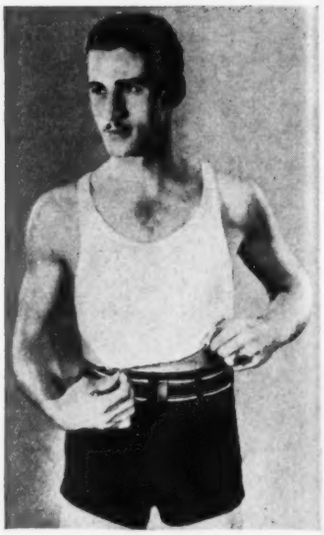
Equipment	12 Wooden Tubs	12 Monel-Metal Lined Tubs	1 Single-Bale Machine
Cost	$600.00	$2,160.00	$1,500.00
Depreciation (Allowing for obsolescence)	60.00	216.00	150.00
Interest	32.40	116.64	81.00
Maintenance	24.00	12.00	25.00
Total fixed charges	116.40	344.64	256.00
Daily fixed charge	0.42	1.24	0.93
Labor	4.10	4.10	3.20
Water	0.90	0.90	0.72
Chemicals	14.31	14.31	8.73
Daily operating cost	19.73	20.55	13.58
Cost per bale	2.19	2.28	1.48
Cost per year	5,425.75	5,651.25	3,734.50

For machine soaking, the daily fixed charges, based on a cost of $1,500 for a single-bale machine would be 93c. Labor cost would be $3.20 for one man to operate the equipment. With the machine, a smaller amount of emulsion is employed, and based on the preceding formula, one bale would require 6 lb. of oil and 3 lb. of soap, giving a cost of 62½c. a bale or $8.73 for nine bales. There would be needed also 720 gal. of water at a cost of 72c.

The accompanying table shows side-by-side the various cost items which have been enumerated. Supervision has not been included, as it is assumed that it would be the same in either case. Overhead charges likewise have been omitted for the same reason, although due to savings in floor space, in most cases it would be less for machine types of equipment. The figures therefore do not represent the total cost of silk soaking by either method, but do serve to illustrate the differences in cost between the two. Thus it can be seen that machine soaking enables a saving of from 71 to 80c. a bale over open-tub soaking, depending on whether the tubs are of plain wood or are Monel metal lined. This represents an annual saving of approximately $1,700 to $1,900 for equivalent equipment.

CENSOR IS BIG PROBLEM IN

New Swimsuit Era



"The remarkable popularity accorded the 'zipper' suit is already a tradition"

NEW JERSEY wants them dark and decorous. California leans to the gay and daring. Illinois will tolerate white, but opposes clinging fabrics. New England is conservative. New York is liberal. All of which would indicate that the 1933 bathing-suit styles will be largely a matter of geography.

Beach apparel offerings are delayed this fall—and with good reason. The knitters face the most difficult problem of style delineation that has confronted them since the advent of the sun-suit four years ago. For, be it known, bathing-suits are entering a new era, and stylists are racking their brains to interpret the trend. The issue abounds in confusing ramifications. First of all, there is the censor. Municipal officials were a big factor in determining sales volume during the season just closed, and they promise to be more important next year.

Inquiry among swimsuit manufacturers discloses that the censor can make or break the success of a given model in his own community. For instance, white suits were the rage among women this year, but they were banned in certain parts of the country, which resulted in seriously curtailing sales. Frequently distributors placed good-sized original orders for whites, promising substantial duplicate business later. When the censors at the various beaches forbade bathers to appear in white, the retailers immediately cancelled their reorders. White ended the season in a strong position, however, and is due to be emphasized in the 1933 season, always provided censorship is not too general.

Only Trunks for Men?

The oddest aspect of the picture, and the most bewildering from the knitter's viewpoint, is that consumer trend and censorship trend run in opposite directions. This is especially true as regards the growing vogue among men to abandon the upper half of the conventional suit and wear trunks only. Manufacturers consider this trend of vital significance as indicating lines due for success in 1933. The remarkable popularity accorded the "zipper" suit offered early this year by a foremost company is already a tradition in the industry, and it is viewed as confirming the belief that men will lean further toward the wearing of trunks only next year.

The trend to trunks for men is spreading fast and while swimsuit stylists do not believe it will become dominant in this country for some years, it represents a demand which must be recognized. Originating in Europe, the style found favor in California, and now appears to be working its way gradually eastward. An interesting point is that it is most approved in the exclusive beaches which normally set the fashion. The crowded resorts around New York and other populous centers have officially tabooed it, but it is growing in New England at a surprising rate. The "zipper" suit won popularity because it was adaptable to either type of resort; by the simple expedient of pulling a zipper the top is easily detached. Incidentally, this vogue promises to increase the popularity of the two-piece suit, which rather lost favor of late, and it may be assumed that the two-piece will occupy a more prominent place in the new lines, because of the advantage of the removable top.

Discussion with manufacturers showed them to be very strongly of the belief that swimsuit styles are at a turning-point which may prove as significant as the sunsuit boom of recent years. Women's suits for 1933 are expected to be more extreme, but this is a difficult issue as it brings up the specter of the censor. The brassiere-and-trunks outfit of 1932 left little to the imagination, yet it was an excellent seller. Censors appeared disposed to look the other way. For those who regarded the brassiere as too extreme, the cutout-under-the-arms model was popular. Both will be shown, in judiciously advanced models, in the new lines.

However, knitters believe the abbreviation of women's suits is near its limit, and they are planning to emphasize novelty of stitch in their new offerings. The success of the waffle and other fancy stitches this year appeared to be most outstanding in the better quality lines. It is reported that wearers complained of the cheaper "waffle" suits as baggy and elongated after being used a few times. The novelty fabric suits retailing at $6, $7 and $8 won an approval so hearty that they probably will be a leader next season. There is a crying need among knitters for new stitch effects, to lend distinction and appeal to the 1933 lines, as compensatory for the fact that abbreviation cannot go much further.

But design apart, the real issue is the censor. Manufacturers are not interested in the controversial aspects of swimsuit styles; their aim is to give the consumer what he or she wants. Sometimes municipal ordinances have a disastrous reaction on sales, and mills find it essential to learn ahead of time just what types hit the average of legislative approval.

The outlook for 1933, however, is encouraging. Censors as a whole tend toward liberalism. Mills are in good stock position. Sales volume for 1932 was above 1931 and not too far below 1930 which was the best of the depression years. Prices tend upward due to raw wool advance. Given a range of variety which is distinctive enough to sell and conservative enough to pass the censor, the 1933 swimsuit lines should have a healthy season.

Village Improvement

EVIDENCED IN STANDARDS SET BY JOANNA COTTON MILLS

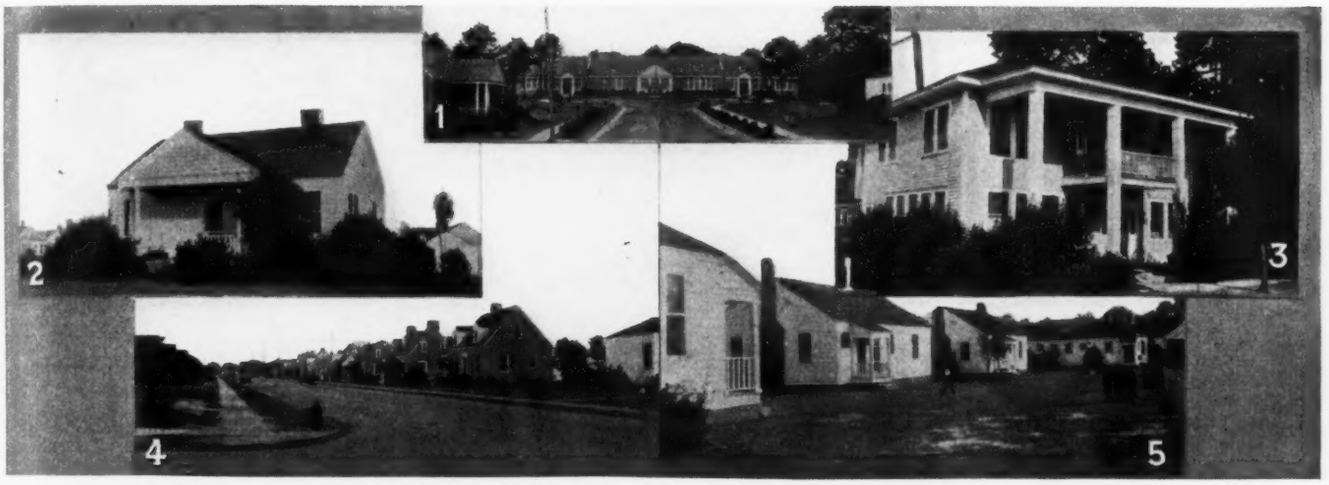


Fig. 1. Public school at Goldville completed two years ago. Fig. 2. Employees' cottage showing typical planting of shrubbery. Fig. 3. Hospital and nursery. Fig. 4. Looking down Magnolia St. Fig. 5. No outhouses, rubbish or automobiles allowed in back yards—note garbage receptacles at right.

◆ *Steady improvement in the general appearance of southern mill villages during the last decade, with particular emphasis upon the development of a more wholesome environment for mill operatives and their families, has been a significant trend in our industry's employer-employee relations. Old villages have been modernized, new villages built, and many additional community activities inaugurated. This article describes some interesting features of the village program adopted by one southern mill.*

EXCELLENT living and working conditions, such as those found in the beautiful village of the Joanna Cotton Mills, located six miles east of Clinton, S. C., are certain to attract and hold textile workers of the highest type. Goldville has been created as a modern and well-ordered village with exceptionally good social and recreation advantages. The work of building an industrial community according to the standards followed at Goldville is never completed. The process involves far more than excavation and construction operations, which are, after all, merely the preliminaries to community development.

There are eight or ten different exterior designs for the operatives' cottages, ranging in size from three to six rooms each, with a few duplex houses for young married couples. Every house is equipped with electric lights, water, sewerage and other conveniences. Liberal plantings of various shrubs have been made around each cottage and park centers developed in various sections of the village. Operatives are not permitted to keep chickens, hogs, cows or other livestock near their homes. This ruling has made it possible to maintain clean and well-kept yards behind the village houses.

All streets have curbs, gutters, under-ground drains and concrete sidewalks. Names of the streets are plainly marked on the curbs and all houses are numbered. The village is provided with playground equipment both at the new school building and near the mills.

Although individual garages and cow barns are not allowed in the village, substantial garages have been erected in groups at convenient places, and group cow barns are provided at a proper distance from dwelling houses for families who own cows. Garden plots are provided in fields adjacent to the village.

Joanna Cotton Mills operate a large cattle farm which provides the village with fresh milch cows. The mill has no dairy but has followed the policy of encouraging every family to own its own milch cow. This has helped considerably during the period of curtailed plant operation. The company owns a herd of about 75 registered Aberdeen Angus cattle from which the surplus is sold locally, a source of supply of milk and meat.

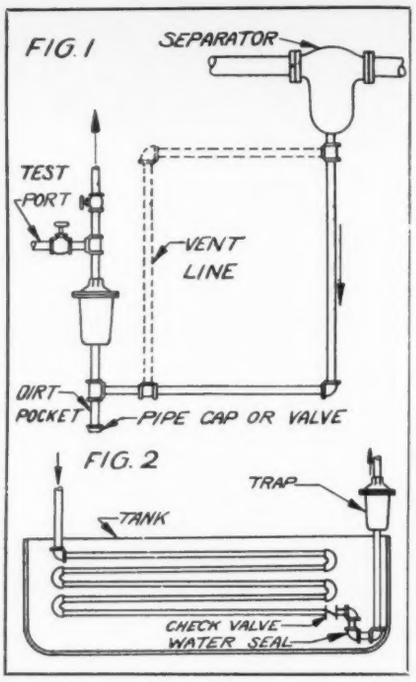
The company maintains a hospital equipped with a complete emergency operating room and several bedrooms. Individual rooms are used chiefly for maternity cases. The resident physician has regular office hours at the hospital, while a graduate nurse, subject to call without charge, is available for all employees. For the convenience of mothers who wish to work in the mills, is a free day nursery for children under school age.

The community club house, one of the centers of social life in the village, is in charge of a welfare director. This building contains a library of several thousand volumes and rooms for meetings of various kinds, being the headquarters of the Girl Scouts and clubs for women and girls. The athletic director, who is connected with the public school, supervises all athletic activities, including baseball, basketball and indoor gymnastics. He is also in charge of the Boy Scouts.

Steam Traps...

PROPER INSTALLATIONS INSURE SATISFACTORY SERVICE

By T. H. Rea

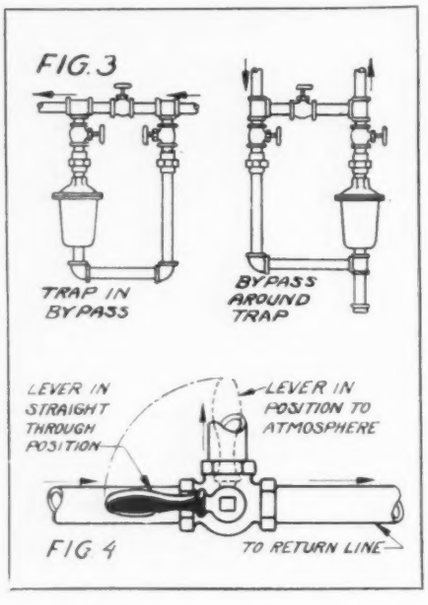


IF A steam trap is of proper capacity, is self-cleaning, and is non-air-binding, the problem of getting satisfactory results depends principally on how the trap is connected into the system. In practically all cases it is desirable to install a steam trap below, and as near as possible to, the steam heated unit drained by the trap. This gives gravity drainage to the trap for condensate, which increases the capacity of the trap by adding the static head of the condensate to the pressure of the steam. Before a slug of condensate can get to a trap through a long line, the steam already in the line must be condensed.

If, for any reason, long lines are necessary between the trap and the unit, steam binding can be prevented by venting the line as shown in Fig. 1. A slug of water coming down the line shown solid will force the steam in the line back to the unit through the vent line. Such a vent line is particularly necessary when the line from the unit to the trap is long and has been insulated to prevent heat loss.

Although gravity drainage to a trap is desirable, it is not imperative. Installations as shown in Fig. 2 are not at all uncommon. The flow of steam carries water along the bottom pipe and up the vertical pipe to the trap. Water will not collect in the bottom pipe unless it is very large.

If it is necessary to install the trap above the unit, a water seal at the low point is advisable, as well as a check valve to prevent the water from flowing back and to prevent loss of prime in case there should be a sudden pressure drop in the unit. The line between the trap and the unit should be no larger than is necessary to handle the flow in order that the steam can carry the water along and not allow it to flow back countercurrent to the steam.



Whenever possible, traps should be installed in accessible locations to facilitate inspection and repair. The subject of trap accessibility raises the question of valve accessibility. The practical answer to this is that traps should be selected with valves and seats that do not require frequent changing—in other words, long life of the valve parts and not accessibility should be the desired end.

There is considerable debate in steam-trap circles concerning bypasses. Where continuity of service is of prime importance, a bypass is a necessity. If anything happens to the trap, the bypass valves can be opened and the system will continue to drain even though there is a temporary steam loss.

On the other hand, the nuisance of having a bypass left open accidentally may make it an expensive luxury on installations where it is not absolutely necessary. Steam leaks through a bypass are hard to detect and may run into many dollars before they are discovered.

Two bypass connections are shown in Fig. 3 which are economical in the use of pipes and fittings. For convenience and to minimize chance of bypass being left open accidentally, all valves should be near together.

Except in the case of small traps used on radiation in residences, hotels, offices, etc., a test cock or other means for observing the discharge is a convenience for checking up on a trap. A favorite device for this is a three-way test cock. (See Fig. 4.) It permits discharging the trap to the atmosphere where it can be observed, and at the same time closes the line past the trap so that condensate in the return line does not mingle with the discharge from the trap. Two ordinary valves as shown on the trap in Fig. 1 will accomplish the same purpose.

With a little experience, it is easy to tell just how a trap is performing by observing the discharge. But remember not to confuse flash steam with live steam.

Some types of traps have greater capacity than others for handling dirt and sludge; but no matter how much dirt a trap can handle, the discharge orifice definitely limits the size of the dirt particles that can be discharged. The majority of trap installations do not require strainers, but there are some cases where dirt and scale conditions are so bad that strainers or dirt pockets are imperative. To be effective these must be cleaned periodically. An effective dirt pocket is illustrated in Fig. 1.

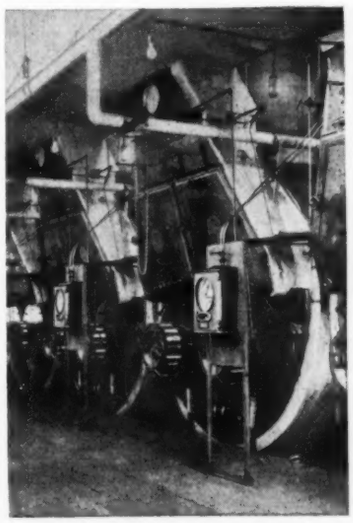
Reprinted from the *Armstrong Trap Magazine*.

Value of Waste Heat

OFTEN UNDERESTIMATED BY TEXTILE MILLS

By John Alden

IN SPITE of the good work which has been done in reducing waste in textile mills, there is still a tremendous amount of heat lost each day in the form of hot waste water. Thus, a misconception of the value of exhaust and bled steam is costing industry, notably the textile and paper branches, thousands of tons of coal annually. In fact, the misconception goes beyond the matter of waste heat. It is believed in some mills that when the exhaust steam is used, the efficiency of the prime mover is unimportant, irrespective of the fact that in many such cases the mills are buying power to supplement that generated at the plant. There is only one condition under which the efficiency of the prime mover is unimportant, and that is where there is an excess of electric power. Even in this event, the effect is questionable, because it is often possible to make an arrangement with the local power company to use the excess power.



It is the waste water, however, which causes the most serious losses. One silk mill with which the writer is familiar uses 440 lb. of steam for boiling-off, 4,700 lb. for dyeing, and 600 lb. for finishing—a total of 5,740 lb. of steam per 1,000 yd. of goods. Another mill uses a total of 3,917 lb. per 1,000 yd. The pressures range from atmospheric to 60 lb. gage. An average consumption of 4,200 lb. per 1,000 yd. represents a flow of about 500 gal. of water. If we assume that the make-up water is at 70° F. and the water is wasted at 200° F., there is a loss of 130 B.t.u. per lb., or a total of 546,000 B.t.u., which, at 65% boiler efficiency, would mean about 70 lb. of coal wasted for every 1,000 yd. To be wasted, the water does not have to go to the sewer at that temperature; it may be cooled or diluted without making any use of the heat.

Heat exchangers to reclaim all the heat would be unduly expensive, but the waste water can economically be cooled to 100° while heating the make-up to 170°, saving almost 70%. With a small flow of 100 gal. per minute, this saving would amount to about 5,000,000 B.t.u., or, at 65% efficiency, a third of a ton of coal per hour. At this rate a heat exchanger would pay for itself in about 2½ months.

It may be argued that this heat is exhaust, that it is not worth anything, or that it is bled steam. If the prime mover is anything but the most efficient, the unit may be looked upon as a combination of an efficient machine and a reducing valve; and any excess over the amount which would be used by the most efficient engine must be considered to cost just as much and to be just as valuable as steam at boiler pressure. If all the exhaust is used, the extra steam consumed by the inefficient engine must be considered as a loss of potential power. This power in a modern plant expanding the steam to about 17 lb. may run as high as 1 kw. on 17.5 lb. of steam.

This is brought out quite clearly in connection with an extraction turbine. Suppose the heat to warm the 100 gal. of water mentioned above was supplied by an extraction turbine at 18 lb. absolute pressure, or 3.3 lb. gage; with a heat exchanger saving 5,000,000 B.t.u. per hour, 4,300 lb. per hr. less steam need be bled; and this amount of steam expanded to 28 in. vacuum in a good turbine would generate and put on the switchboard some 180 kw., which would either reduce the steam flow to the turbine or displace $1.80 worth of purchased power per hour. No matter how one figures, 25,000,000 B.t.u. lost is a ton of good coal wasted.

Counterflow exchangers are usually preferable for service of this kind, because the incoming water can be heated to a higher temperature than the waste water leaves. Above all else, the design should be such that cleaning can be done easily, preferably while in service. The success of laundries in reclaiming heat from waste wash water containing quantities of soap and lint has proved what can be done under the most adverse conditions. In such instances it has been so successful that, where formerly a power plant generating power so that the exhaust was available for heating water was considered a necessity, the electric drive has been successfully applied, because the use of heat reclaimers has reduced the heat requirement to such an extent that the balance does not always make it profitable to put in generating equipment.

Of course heat exchangers are not the only solution. Under certain conditions closed heating coils can be used in the vats and heating tanks, and the steam used for heating can be kept clean and drained or pumped at high temperature back to the heater or storage tank. Where large quantities of low-temperature water (90° to 100°) are needed, as in the rayon industry, it is usually advisable to operate the prime mover against a rather high back pressure (24 or 25 in.) and to use the process water as condenser cooling water. Even in this case it must not be overlooked that an inefficient prime mover causes a definite loss, which can easily be evaluated by considering the unit as a combination of an efficient prime mover and a reducing valve, as previously suggested, and calculating the excess.

Prison Duck Mill

REPRESENTS EXCESSIVE COMPETITION WITH PRIVATE INDUSTRY

THE cotton duck mill at the Atlanta Federal prison produces approximately 25% of the total wide duck production of the country. . . . . It thus represents excessive Government competition in one industry. . . . . It does not provide the diversification of prison activities which Congress has set down as a basic requirement. . . . . The extremely high investment per operative in a cotton duck mill, and the low "labor value" of the product, defeat the object of the rehabilitation work of the prison.

These are the main contentions in the argument advanced by the Cotton Duck Association and the Association of Cotton Textile Merchants of New York against the further extension of this particular activity at Atlanta. The argument was presented before the Shannon Committee, the special House committee investigating Government competition with private industry. At the hearing, held Sept. 22, Robert P. Hooper appeared as president of the duck association and also as representing the merchants' association. He was supported by Howard Baetjer, of Mt. Vernon-Woodberry Mills; Norman E. Horn, of Wellington, Sears & Co.; and Ray Bell, secretary of the Association of Cotton Textile Merchants of New York.

IT IS difficult to see how the argument presented by Robert P. Hooper, and others, against extension of the cotton duck mill at the Atlanta Penitentiary can be refuted. It was a clear, forceful and conclusive statement. Further injustice to the wide-duck industry should be averted by adoption of the suggestions made by the manufacturers.—Editor.

The textile representatives suggested that no further spindleage be added to the present mill and that, as the looms wear out, they be scrapped. Sanford Bates, director of the Bureau of Prisons of the Department of Justice, appearing at the hearing, stated that the Bureau has no present intention of increasing either the spindles or looms at the Atlanta prison. He made a significant remark when he said that, if the Government did not have a duck mill now it would not build one as it does not represent sufficient diversification and the money could be spent better in other industries. This, in essence, is the one of main contentions of the cotton duck manufacturers.

The major points in Mr. Hooper's statement to the Shannon Committe are abstracted below:

From Cotton Duck Association figures I am able to give you the production of Wide Duck for the years 1927 to 1932 inclusive, the year given in each case being through June 30: June 30, 1927, 17,656,614 lb.; June 30, 1928, 18,205,454 lb.; June 30, 1929, 21,561,826 lb.; June 30, 1930, 22,157,102 lb.; June 30, 1931, 15,511,456 lb.; June 30, 1932, 12,659,739 lb.

At this time I am not able to give you completely comparable figures of production at the Atlanta Penitentiary, but I attach as an exhibit, a copy of a letter written May 28, 1929, by A. H. Conner, then Superintendent of Prisons, showing that the production the previous year had been 5,824,680 yards. In paragraph 3 of the same letter is the statement that the mill at Atlanta is equipped with 516 looms, on which were produced 5,000,000 yd. of canvas and 500,000 yd. of lighter materials. We have not the figures in pounds but we estimate actual production of wide duck in 1929 at Atlanta was about 5,500,000 lb.

We believe that a consideration of these facts will indicate that a most serious situation confronts the duck manufacturers. Bear in mind that wide duck looms can be used only for making wide duck and are not available for making other fabrics. Therefore, when the Government sets up competition in this field, the situation is particularly acute.

I also wish to call attention to one other point in connection with the operation of the Atlanta Penitentiary. The mill originally was set up as a weaving mill, and bought its yarn supply outside. Later it put in some 8,000 spindles, to supply about one-fifth of the yarn required. It is apparently the plan to add other spindles until the entire yarn requirements for weaving may be produced at the mill.

I wish to make the comment that in these days of necessitous curtailment of production in the cotton industry, the cardinal sin is the addition of more spindles.

As a matter of fact, the cotton industry has brought about a decrease of some 37% in active spindles since 1925. In a very small section of the industry, such as the wide duck division, the addition of spindles or looms is a matter of grave concern.

We recognize the desirability of work for prisoners which shall be of value in their rehabilitation and which helps to create some earning power for them. However, it seems to us that in electing to manufacture cotton duck in such quantity there are several errors in reasoning:

Errors of Reasoning

A. Evidence has been presented which shows concentration in one industry to the extent of 25% of the total production of that industry, which is clearly not in accord with the policy of diversification (of prison industry) contemplated in the introduction to bill No. 271—71st Congress (HR 7412).

B. The manufacture of cotton duck requires a high investment per operative in a commercial mill (from $4,000 to $5,000 per person employed). An investment by the Government which displaces such an investment in private industry is a serious affair.

C. The wisdom of making such an investment is questioned on the ground that with modern equipment, a product is made in which "labor value" is a small part of the ultimate value of the product, thus defeating the object of the rehabilitation work, which as we understand it is to provide employment for a maximum number of workers with a minimum of competition to free industries.

D. Because of the limited number of mills making cotton duck, the ultimate value to a prisoner of experience in duck production is very small, since the number of positions for men of this training would be extremely limited.

TEXTILE WORLD'S GUIDE TO

Southern Textile Exposition

DETAILED descriptions of the booths at the Tenth Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, are given on this and following pages. In the report of each individual exhibit which has been announced to date is a a list of the products which the exhibitor has chosen to display on this occasion. The booth numbers may be used in conjunction with the floor plans presented herewith in order to locate any particular exhibits in which the visitor may be interested.

Abbott Machine Co., Wilton, N. H. Booths 214, 215, 241. Winding machines and warping creels. Emphasizing cone winding at high speeds. Represented by W. G. Abbott, Jr., sales manager; A. S. Thomas, southern representative; W. L. Perry, engineer, and J. G. Sanders, service.

Aldrich Machine Works, Greenwood, S. C. Booth 103. Ball-bearing equipment; pick counter for looms; regain indicators for picker-lap weight control and for sizing roving and yarn; regain controller for conditioning-testing laboratories, etc. Displaying also Dyess ball-bearing comb box for cards, Aldrich positive stop motion for pickers, and Lummus Gyrator. Represented by A. P. Aldrich, Jr., sales manager; Rob't Aldrich, plant manager; I. W. Dixon, service engineer; Roy Perry, sales representative.

Allis-Chalmers Mfg. Co., Milwaukee, Wis. Booths 476-477. First showing of new Seal Clad open-type textile motor. Also new Texsteel sheaves for Texrope drives. Rep.: Berrian Moore, manager Atlanta district; Harry S. Roberts, textile sales engineer, Atlanta; William Parker, branch manager, Charlotte office; A. I. Richardson, sales engineer, Charlotte.

Aluminum Co. of America, Pittsburgh, Pa. Booth 423. Aluminum parts used in textile machinery and in rayon and textile industries. Special emphasis on aluminum-primed lumber. Rep.: F. L. Magee, district manager, Atlanta office; D. M. Johnston, Philadelphia; H. A. Lilly, R. H. Rigg, P. T. Teague and R. C. Bradbury, all of Atlanta.

American Bemberg Corp., New York. Booth 482-A. Bemberg yarn from 30 to 180 denier; Lintella yarn 300 to 2,400 denier; men's, women's and children's seamless and full-fashioned hosiery made from Bemberg yarns; special circular knit fabrics; tricot and milanese fabrics for underwear and outerwear; new heavy sheers, sheers, and boucles; and other fabrics suitable for underwear, dresses, curtains, etc. Featuring fine deniers of Bemberg yarn, the new Lintella yarn and new and novel weaves. Represented by C. Chester Bassett, Greensboro, N. C.; B. C. Dunlop, vice-president; Dr. W. Schlie, sales manager; H. A. Chapell, sales representative; T. H. Johnson, weaving technician; E. C. Morse, manager co-operative merchandising department and Mrs. Louis Huston, chief of educational service.

American Enka Corp., Enka, N. C. Booths 402-404. Fabrics made of company's rayon yarns. Rep.: R. J. Mebane, C. R. Hall, G. P. Leahy.

American Hard Rubber Co., New York. Booths 443-444. Hard rubber pipe and fittings; rubber-lined Crane gate valves; rubber-lined Saunders diaphragm valves; hard rubber covered dye sticks, measures and specialties. Section of steel tank to show character of work in bonding rubber to steel, together with seams to lap over the angle, and other features of workmanship of "Ace" tank linings. Rep.: J. N. MacLaren.

American Moistening Co., Providence, R. I. Booth 126-A. General line of devices for supply, maintenance and control of humidity. To feature Amco self-cleaning nozzle for humidifier heads. Rep.: F. J. Orme, assistant general manager; Marvin McCall, W. L. Burgess, W. L. Johnson and J. D. Johnson.

American Wool and Cotton Reporter, Boston, Mass. Booth 211. Textile publisher.

Armstrong Cork & Insulation Co., Lancaster, Pa. Booth 132. Cork-covered rolls. To emphasize savings resulting from use of these rolls, using figures from actual mill operations. Also equipment for installation of the cork covering. Rep.: W. B. Tucker, T. L. Hill, R. C. Trask, V. Ashley, L. C. Bayless.

Armstrong Machine Works, Three Rivers, Mich. Booth 441. Armstrong steam traps. To display a glass model of the Armstrong inverted bucket steam trap with free-floating lever, operating under 5 lb. steam pressure, demonstrating frictionless, self-cleaning and non-air binding features. Rep.: O. E. Ulrich, factory representative; A. T. Shephard, R. F. Phipps, district repersentatives.

TEXTILE WORLD maintains headquarters in booths 223 and 224 at the Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22. Cordial invitation is extended to visitors to make this booth their business headquarters while in Greenville. Representatives of TEXTILE WORLD's editorial and business staffs are in attendance to be of service. Visitors' mail, sent to our Greenville office, 1303 Woodside Building, or to our booth, may be picked up at the booth.

Ashworth Bros., Inc., Charlotte, N. C. Booth 133. Card clothing.

Atlanta Brush Co., Atlanta, Ga. Booths 429-430. General line of brushes. Rep.: G. B. Snow; Howard R. Cook, vice-president; T. C. Perkins.

Atwood Machine Co., Stonington, Conn. Booth 237. Monarch double-deck twister; Utility double-deck twister; 5B doubler twister; Stonington single-deck winder. Represented by E. H. Peirce, vice-president and general manager; A. L. Lewis; I. R. Rowe, chief engineer; F. Sails, southern representative; Harold Morton.

Bahnson Co., Winston-Salem, N. C. Booths 216-218. Latest type "H" Bahnson humidifier equipped with individual control and Bahnson master control. To feature complete Bahnson trunk system which will include humidifying, cooling and ventilating. Rep.: A. H. Bahnson, president; F. F. Bahnson, vice-president; Arvin Page, assistant chief engineer; S. C. Stimson and Ira L. Brown, southern sales engineers.

Barber-Colman Co., Rockford, Ill. Booth 235. Automatic spoolers and super-speed warpers. Represented by B. A. Peterson, director of sales and development; R. E. McCausland, field manager; R. G. Ross, field superintendent, Rockford. W. B. Anderson, manager; J. E. Moore, sales engineer, Framingham. J. H. Spencer, manager; N. H. Alford, assistant manager; S. R. McElroy, superintendent of installation, spoolers and warpers; L. S. Ligon, superintendent of installation, warp-tying machines, Greenville.

Charles Bond Co., Philadelphia, Pa. Booth 481-A. Textile leathers made from Bondaron special tanned leather, including check straps, lug straps, bumper straps, harness straps, hold-up straps, jack straps, as well as all styles and types of pickers. Also imported roller skins; solid round leather belting and flat belting; oak-tanned belting; rawhide lacing, etc. Rep.: C. Carter Bond, manager; John C. Turner and Harold C. Smith.

Borne Scrymser Co., New York. Booth 464-A. Breton Minerol process, including equipment and products for lubrication and "conditioning" of cotton. Rep.: Hughes L. Siever, Wm. B. Uhler, R. Bigham Smith.

Bristol Co., Waterbury, Conn. Booth 333. Recording and controlling instruments, together with Bristo safety set screws and Bristol belt fasteners. To feature new direct-reading relative humidity recorder; also new free-vane full-floating anticipatory controller with

variable time cycle features. Rep.: E. L. Stilson, D. D. Ault.

H. W. Butterworth & Sons Co., Philadelphia, Pa. Booth 120-A. To feature Ultra package and beam dyeing machine. Rep.: J. E. Butterworth, DeH. Butterworth, A. Rick, G. Steiger, J. H. Zahn.

Cling-Surface Co., Buffalo, N. Y. Booth 458. Operating exhibit demonstrating effectiveness of belt treated with Cling-Surface belt preservative, as compared with same belt untreated. Rep.: Gordon N. Parker, vice-president; James J. Boyd, salesman.

Clinton Corn Syrup Refining Co., Clinton, Iowa. Booth 205. All grades of textile starches and corn syrup. Rep.: J. W. Pope, Atlanta; Luther Knowles, Charlotte; George E. Corson, Clinton.

Clipper Belt Lacer Co., Grand Rapids, Mich. Booth 221. Clipper belt lacing equipment, including hooks, belt lacers, belt cutters, and connecting pins for clipper hooks. To feature Clipper speed lacers. Rep.: Perry J. Edwards.

Continental-Diamond Fiber Co., Bridgeport, Pa. Booth 106. Diamond Fiber material handling receptacles; Celeron silent gears; Vulcanized fiber and Dilecto. Also Continental trucks, a companion line. Rep.: L. T. McCloskey, vice-president; N. N. Wright, sales manager; C. L. Simmons, southern rep.

Corn Products Refining Co., New York. Booth 457. Corn products for textile industry. Rep.: Dr. W. R. Cathcart, technical director; John R. White, manager Greenville office; Albert G. Smith, J. C. Alexander, C. G. Stover and W. R. Joyner.

Cotton, Atlanta, Ga. Booth 408. Textile publishers.

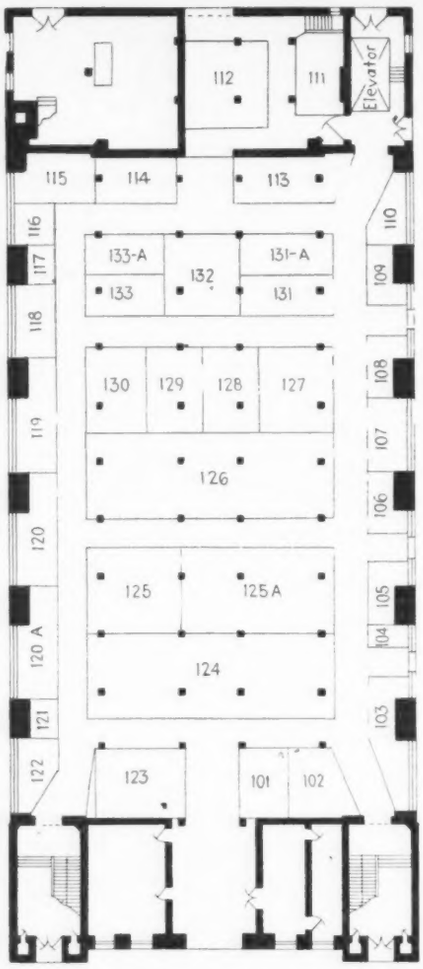
Crane Co., Chicago, Ill. Booths 460-462. Valves, fittings and specialties, especially adapted for service in textile mills. Will feature display of valves made of various corrosion-resistant materials intended for service in bleaching, dyeing and finishing. Rep.: W. F. Lahl, Chicago; L. J. Spencer and J. A. McMurry, Atlanta; P. F. Sackett, Greenville; G. W. Sutton, Knoxville; A. Marshall, Asheville; J. A. Graney, Charlotte.

Crompton & Knowles Loom Works, Worcester, Mass. Booth 125-A. Reception booth for visitors. Rep.: S. B. Alexander, southern manager; T. P. Graham, J. C. Irvin, S. V. P. Desmond, Ralph M. Deal.

Crouse-Hinds Co., Syracuse, N. Y. Booth 471. Complete line of condulets for general mill installations; new line of explosion-proof condulets for hazardous locations; line of plugs, receptacles and floodlights. Represented by Floyd Smith, Carl Hausman, Horace Guiney.

Curtin-Howe Corp., New York. Booth 210. ZMA pressure-treated lumber, especially featured for sub-flooring and roofers, also timbers. Rep.: W. E. Norvell, southern manager, Chattanooga; Wilkins Cagle, Greenville.

Curtis & Marble Machine Co., Worcester, Mass. Booth 225. Latest model shearing machine for cotton, silk, etc., equipped with improved Electro-non-cut



First floor, main building, Southern Textile Exposition

device for protecting seams or irregularities in the fabric from injury while passing through the machine. Improved air-lift folder for 1-yd. folds equipped with self-contained motor-driven compressor. Latest model railway sewing and rolling machine. Portable motor-driven sewing machine with special gear-reduction drive. Represented by Walter F. Woodward, Greenville; members of firm and service men from Worcester in attendance.

Davison Publishing Co., New York. Booth 233CX. Textile publishers.

Detroit Graphite Co., Detroit, Mich. Booth 201. Industrial paints.

Draper Corp., Hopedale, Mass. Booth 124. Featuring new C model shuttle-changing loom for rayon, new R model loom weaving 60-in. No. 6 duck at 132 picks per min. and the X model high-speed loom with numerous improvements. Exhibiting also 40-in. E model loom weaving print cloths, a 36-in. K model with dobby on rayon and a 40-in. Draper-Stafford shuttle-changing loom on fine lawns. Showing also spinning and twister spindles and rings, thread guides, Burdett bunch builder, improved Morrill slasher comb, Rhoades double-dent slasher comb, temples, bobbins, full line of shuttles and improved repair parts for looms. Represented by B. H. Bristow Draper, president; Wallace I. Stimpson, vice-president and agent; H. A. Billings, works manager; A. E. Stafford, E. M. Darrin, vice-president; C. H. Draper, Jr., W. M. Mitchell, and members of sales and service staffs.

E. I. Du Pont de Nemours & Co., Paint and Varnish Division, Philadelphia, Pa. Booth 122. Featuring Dulux finishes for mill-village painting and for use in interior of mills where quick-drying, yellow-resisting whites of unusual characteristics are desired. Represented by M. J. Hanger, F. H. Aberly, S. W. Quisenberry.

Du Pont Rayon Co., New York. Booth 445. Rayon in various put-ups; also fabrics and garments made therefrom. Rep.: F. H. Coker, district sales manager, Charlotte, and two salesmen.

Durant Mfg. Co., Milwaukee, Wis. Booth 449. Counting and measuring devices for the textile industry. Featuring resetting loom pick counters and predetermined counters. Represented by George P. Davis, J. B. Barton, Jr.

Duriron Co., Dayton, Ohio. Booth 449. Duriron corrosion-resisting material for practically all corrosives; Durimet, a nickle-chromium-silicon steel especially resistant to weak sulphuric acid and caustic soda. To feature corrosion-resisting pumps, valves, fittings, pot-eyes, chemic make-up systems, acid tank-car unloading systems, acid drainage, tin and lead weighting systems of Duriron and of Durimet. Rep.: W. H. Scott and B. D. Spofford, of Dayton; Geo. P. Davis, Charlotte.

Eclipse Textile Devices, Inc., Elmira, N. Y. Booth 102. Eclipse yarn cleaner; Eclipse slub catcher for cotton and worsted yarns; cotton spinning frame equipped with Eclipse bobbin holder and creel-board wiper; Eclipse random dyeing machine; samples of multi-colored, random-dyed yarn. Represented by J. C. Ferguson, president; J. P. Garey, general manager; L. A. Uttrich, J. D. Lutes, L. B. Hasbrouck.

Economy Engineering Co., Chicago, Ill. Booth 449. Ball-bearing electric telescoping cotton stacker designed especially for stacking cotton, but effective also for piling cases of finished goods and for overhead maintenance and repair work. Rep.: George P. Davis, R. S. Kerr.

Fafnir Bearing Co., New Britain, Conn. Booth 105. Ball-bearing applications for textile machinery. Featuring special ball-bearing units developed for one-process pickers and a new series of pillow blocks specially adaptable to textile finishing machinery. Represented by H. R. Reynolds, chief engineer; C. F. Stanley, sales manager; C. A. Berg, textile engineer; A. G. Laughridge, Atlanta branch manager.

Fiber Specialty Mfg. Co. Division, National Vulcanized Fiber Co., Kennett Square, Pa. Booth 478-A. Hard vulcanized fiber textile mill equipment, roving cans, doffing trucks, boxes, barrels. To feature new Dreadnaught truck and new conditioning truck. Rep.: Geo. B. Scarlett, R. G. Henderson, H. R. Stoops, H. R. Chandler, Ralph Woods.

Finnell System, Inc., Elkhart, Ind. Booth 110. Floor-maintenance equip-

ment. Featuring No. 90 combination scrubber-absorber and polisher. Represented by J. W. Farris, R. L. Phillips, R. Finnell.

Fisher Governor Co., Marshalltown, Ia. Booth 210. Pressure-reducing valves, pump governors, steam traps, pilot - operated master controllers, strainers, level controllers, relief valves, back-pressure valves, air eliminators, and other automatic-control specialties. Featuring pilot-controlled pressure regulators for exacting requirements in industrial plants, new inverted-bucket steam trap, and series 4,200 pilot control designed to give positive floating control. Represented by J. McCabe.

Foster Machine Co., Westfield, Mass. Booth 231. Model 102 high-speed cone winder demonstrating improved methods of winding knitting cones and packages of warp yarn for cone warping. To feature improved tensioning and slub-catching attachments. Rep.: T. E. Connor, sales manager; Fred P. Brooks and R. W. Ensign, southern representatives.

Foxboro Co., Foxboro, Mass. Booth 440. Instruments for controlling, recording and indicating humidity, temperature, pressure, and flow. Featuring slasher and dye-tub control instruments. Represented by W. W. Barron, Southern manager; B. B. Peacock, district manager; C. E. Sullivan, general sales manager; J. B. McMahon, chief sales engineer.

Gates Rubber Co., Denver, Colo. Booth 219. Vulco rope drives; cone and evener belts; pickers; and lug straps. Represented by F. G. Siegrist, divisional engineer; D. J. Broadhurst, factory textile engineer; G. R. Morgan, Greenville; E. Vanhook, Atlanta; V. J. Brookshire, Charlotte.

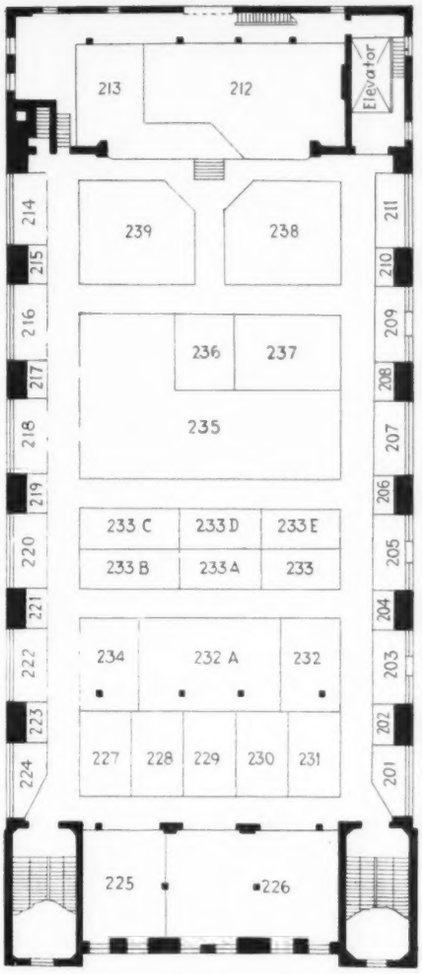
Gaylord Container Co., Atlanta, Ga. Booth 208. Latest developments in corrugated shipping cases for textiles. Represented by Ben M. Williams, R. Scott Baum, S. P. Bellsinger.

General Electric Co., Schenectady, N. Y. Booths 116, 117, 118. Motors and control equipment applicable to the textile industry. Represented by W. W. Cronkheite, W. H. Tate, F. C. Alexander, O. L. Cantrall, A. W. Baker, R. H. Jackson, E. D. McKellar, R. B. Horning, F. C. Smith, P. H. Reeves.

General Electric Co., Incandescent Lamp Dept., Atlanta, Ga. Booth 118-A. Illuminometers; modern lighting development display; sunlamp display; voltage demonstration equipment. Represented by T. W. Moore, E. F. Baesel, G. E. Park, G. M. Reynolds.

General Electric Vapor Lamp Co., Hoboken, N. J. Booth 115. New model Cooper Hewitt lamp, especially designed for industrial applications; also other specialty models. To feature commercial application of dual purpose or hygienic lighting. Rep.: Charles F. Strebig, sales manager; D. R. Grandy, commercial engineer; W. W. Becky, regional manager; F. E. Keener, manager Atlanta office; C. N. Knapp, manager Charlotte office; J. P. Baum, Jr., salesman.

Gerrard Co., Inc., Chicago, Ill. Booth 233. Wire-tying equipment for cases, cartons, and bales. Represented by M. J. Gerrity, W. B. Renoil, W. E. Byron.



Second floor, main building, Southern Textile Exposition

Gilman Paint & Varnish Co., Chattanooga, Tenn. Industrial paints and varnishes.

Graton & Knight Co., Worcester, Mass. Booth 405. Transmission belting for the textile industry and complete line of textile-mill specialties. Emphasizing new research belting and new 50 Type pickers. Represented by H. W. Tuxbury, sales manager specialties division; P. M. Arnall, assistant general sales manager; C. W. Stanton, South Carolina representative; O. D. Landis, North Carolina representative; C. C. Anderson, southern representative; D. A. Ahlstrand, Georgia, Florida and Alabama representative.

H & B American Machine Co., Pawtucket, R. I. Booth 130. Model C ring spinning frame, 48 spindles, 3½ in. gauge, 1¾ in. diameter ring, 8 in. traverse. Frame will be fitted with H & B long draft arrangement; also with patent reversible tape drive whereby cylinders can be run in either direction without reversing the tapes or adjusting the idler pulleys. Rep.: E. L. Martin, vice-president; J. W. Rimmer, northern sales agent; J. C. Martin, southern agent; Thomas Aspden, A. J. Drabble, Fred Wright, and Fred Dickinson, southern representatives.

Hermas Machine Co., Hawthorne, N. J. Booth 133. Combination brush and shearing machine in operation. Rep.: Messrs. Mason, Lucas, Anderson, Weir and Curtis.

E. F. Houghton & Co., Philadelphia, Pa. Booths 413-415. Sizing products, softeners, silk soaking oils, stainless lubricants, textile machinery lubricants, motor oils and textile leathers. To feature Houghton check-up method of evaluating sizing products. Rep.: Geo. S. Rogers, C. G. Schultze, H. J. Waldron, D. O. Wylie, James A. Brittain, Porter H. Brown, R. J. Maxwell, J. N. Keith, H. C. Roberts.

Howard Bros. Mfg. Co., Worcester, Mass. Booths 474, 475, 476-A. Card clothing and heddles. Represented by Harry C. Coley, president and treasurer; E. M. Terryberry, Guy L. Melchor, Guy L. Melchor, Jr.

Hubbard Bros. & Co., New York, Booths 206, 207-A. Private wires from New York, and boards showing stock and commodity quotations. Represented by S. T. Hubbard, Jr., J. A. Davant, F. Nicholson.

Huntington & Guerry, Inc., Greenville, S. C. Booth 432. Electrical installations in textile mills. Represented by R. S. Huntington, president; DuPont Guerry, Jr., vice-president and treasurer; J. H. Howard, secretary.

Hyatt Roller Bearing Co., Newark, N. J. Booth 456-A. Complete line of Hyatt roller bearings for textile machinery applications; completely Hyatt-equipped cotton loom stripped to the chassis to show simplicity of Hyatt construction and ease of operation; cutaway sections of Hyatt-equipped spinning frame cylinder, Pitman roll, and drawing frame, calender lap rack, card stripper roll, dry can, etc. Represented by H. O. K. Meister, assistant general manager; H. K. Porter, general sales manager; W. L. Iliff, eastern sales manager; F. U. Naughton, textile sales engineer; E. P. O'Neill, textile sales engineer; J. M. Grady, district engineer; H. M. Carroll, advertising manager.

International Nickel Co., Inc., New York. Booth 107. To feature outstanding uses of monel metal in bleaching, dyeing and finishing plants. Represented by J. M. Tull and J. F. Nation, of J. M. Tull Rubber & Supply Co., Atlanta; and C. J. Bianowicz, International Nickel.

Jenkins Bros., New York. Booths 441-442. Bronze, iron and steel valves; composition valve discs; pump valves; sheet packings; gauge glasses, and mechanical rubber goods. Rep.: B. R. Wofford.

Johns-Manville Corp., New York. Booth 120. Featuring Johns-Manville industrial insulations. Exhibiting also complete line of industrial and mill-village roofing and building materials, packings, floorings, and other industrial products; and asbestos cloth in various stages of manufacture from mine to fire-fighting clothing. Represented by A. S. Royal, R. T. McManeus, J. H. Olden, F. C. Alexander.

Keever Starch Co., Columbus, Ohio. Booth 407. Textile Starches. Rep.:

Chas. J. Kurtz, president; Daniel H. Wallace, southern agent; Claude B. Iler, L. J. Castile and F. M. Wallace.

A. C. Lawrence Leather Co., Peabody, Mass. Booth 448. Spinna calf, Aclobrand sheep, Clearapelts. Represented by Henry H. Hersey.

Thomas Leyland Machinery Co., Boston, Mass. Booth 431. 51-in. three-bar regulating cloth expander; rubber-covered expander equipped with roller bearings; 51-in. three-bar improved regulating expander equipped with composition clutches, Metaline bushings, and steel bars; New Idea scroll roll; straight and angular guides. Represented by Frederick T. Walsh, president and treasurer; Arthur Isherwood, mechanical superintendent.

Manhattan Rubber Mfg. Division, Passaic, N. J. Booths 418-422. Textile-rubber products for textile industry including Condor Textyl line and other mechanical rubber goods, rubber covered rolls, and rubber lined tanks for finishing plants. To feature new "Condor Compensated" transmission belt. Rep.: E. A. Hamilton, C. P. Shook, E. H. Olney.

Manufacturers Record, Baltimore, Md. Booths 424, 425. Textile publishers.

Mathieson Alkali Works, New York. Booths 469, 470. Textile chemicals, including caustic soda, soda ash, liquid chlorine, bleaching powder, ammonia, and HTH. Rep.: J. W. Ivey, F. O. Tilson, R. C. Staples, Z. N. Holler, K. Sanders.

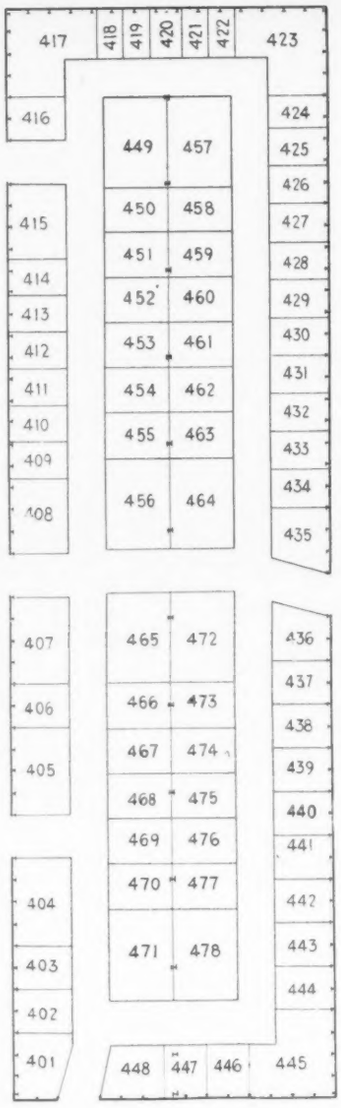
Melliand Textile Monthly, New York. Booth 459. Textile publishers.

Merrow Machine Co., Hartford, Conn. Booth 203. To feature two machines for butted seaming. Also variety of machines for plain and ornamental overedging operations, as well as for overseaming such articles as pillow cases, bedspreads, wiping cloths, blankets, aprons and housedresses. Rep.: E. W. Hollister, Charlotte, and R. B. Moreland, Atlanta.

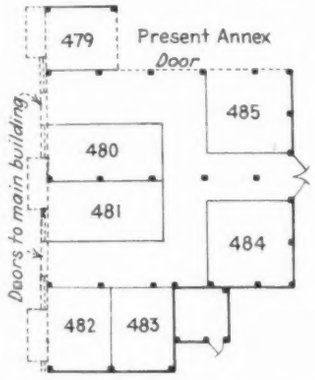
New York & New Jersey Lubricant Co., New York. Booth 109. Non-fluid Oil for all textile mill lubrication needs. Rep.: L. W. Thomason, southern district manager; Falls L. Thomason, W. C. Taylor, J. A. Sorrells, Fred Jacoway.

Parks-Cramer Co., Fitchburg, Mass. Booth 127. Traveling cleaner for removing fly and lint from spinning frames; ParkSpray automatic air changer; humidifier for home use to be exhibited for the first time; ParkSpray Mistyfier, a compact humidifier for offices, showrooms, testing laboratories, etc.; operating model of a central-station air-conditioning system under full automatic control. Represented by P. A. McKittrick, treasurer and general manager; W. B. Hodge, vice-president in charge of development and southern sales; H. B. Rogers, O. G. Culpepper, W. H. Burnham, J. F. Porter, J. R. Henderson and E. S. Rothrock.

Penick & Ford Sales Co., Inc., Cedar Rapids, Ia. Booth 220. Exhibit of corn products including starches, dextrines, gums, corn syrup, corn sugar, corn oil, etc. Represented by Guy L. Morrison, C. T. Lassiter, J. H. Almand, D. P. O'Connor and C. W. Bloomhall.



Permanent annex, Textile Hall, Southern Textile Exposition.



Permanent annex, Textile Hall, Southern Textile Exposition.

Permutit Co., New York. Booths 409, 410. Water-treating and softening equipment, chemical feeds, continuous blow-off equipment, Ranarex CO_2 indicators and recorders, and activated-carbon filters. A projector showing the difficulties caused by water impurities and how these may be overcome by correct water treatment will also be exhibited. Represented by L. S. Ferguson, assistant sales manager; D. J. Saunders, N. D. Doane, H. H. Morrison.

Quaker City Chemical Co., Philadelphia, Pa. Booth 222. Sulphonated, soluble and vegetable oils. Softeners, finishing materials and specialties. Rep.: W. S. McNab, vice-president and southern manager; Robert Cowan, chemical engineer; H. E. McNab, representative for North and South Carolina.

Rayon, New York. Booth 439. Textile publishers.

Reeves Pulley Co., Columbus, Ind. Booth 233. Equipment for speed control and adjustability, including Reeves variable speed transmission; Vari-Speed motor pulley; Reeves variable speed drive for spinning and twister frames. To feature particularly the new Reeves spinning frame drive. Rep.: C. L. Irwin, sales manager; D. W. Clem, vice-president of Reeves Pulley Co. of N. Y.; Alfred Jepson and D. M. McSpadden.

Rhode Island Warp Stop Equipment Co., Pawtucket, R. I. Booth 119. K-A electrical warp stop on model X Draper loom in operation; K-A drop wires. To feature latest developments in filling feeler equipment; transformers; delayed action knock-offs. Rep.: Wm. D. Whittaker, W. L. Ferguson, W. A. McKinney, Geo. W. Smith.

Rice, Barton & Fales, Inc., Worcester, Mass. Booth 125. New type dye jigg. Rep.: L. M. Start, secretary.

Roessler & Hasslacher Chemical Co., Inc., New York. Booth 233BX. Textile fabrics bleached with R. & H. peroxide, Albone C, and Solozone. There will be on display also a glass model of a peroxide bleaching kier. Represented by John C. Robertson, Charles D. Potter, LeRoy Kennette.

Saco-Lowell Shops, Boston, Mass. Booth 227. Featuring controlled draft-drawing process of the two-stage type using a lap winder of improved design and a multi-roller drawing frame; multiple-type twisting frame for high-twist single and plied yarns with revolving creel spindle; recirculating air-filter for opening and picker rooms. Exhibiting also new sliver tester, differental motion, spring-tempered heat-treated spindle blade and testing machine, continuous card stripper, etc. Represented by D. F. Edwards, president; W. F. Lowell, vice-president and general sales manager; F. E. Rowe, Jr., sales engineer; M. A. Comer, Alex. R. Davis, W. W. Gayle, J. L. Graves, James Strang, H. P. Worth, sales agents; R. E. Lindsey, H. M. Walsh, service engineers; Henry Marsh, designing engineer.

Security Products Co., St. Louis, Mo. Booth 121. Special steel windows. Rep.; J. H. Leversedge.

Sherwin-Williams Co., Philadelphia, Pa. Booth 401-A. Paint products for textile plant and village maintenance described in panel form, featuring Save-Lite mill whites, mill village paint, and roof coatings. Rep.: A. H. Kennedy, manager textile sales; G. L. Hehl, superintendent of manufacturing; Emmet H.

(Continued on page 111)

Cotton seersucker suits have found favor.

Representative employees of a typical southern mill wearing their uniforms of cotton.

High style evening gown of printed pique.

New Cotton Uses

THE STORY OF AN AGGRESSIVE CAMPAIGN

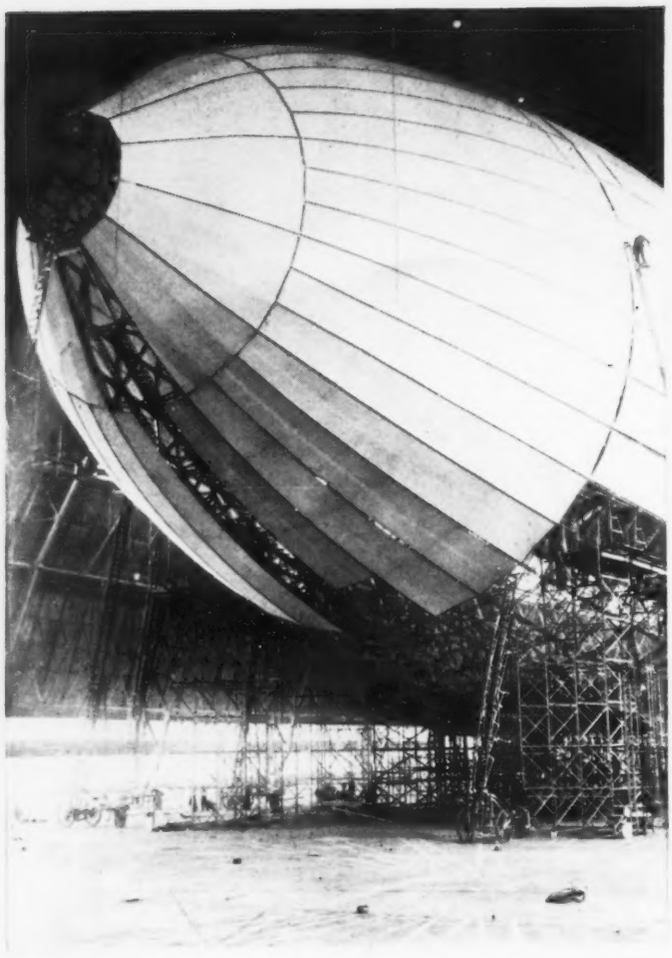
CONTRACT bridge sweeps the the country; the "Culbertson" system of bidding attains popularity; a bridge table cover of cotton, printed with the rules of "Culbertson" bidding, appears on the market. The significance of the rapid sequence of events lies not so much in the fact that a certain yardage of cotton goods will be consumed in making bridge table covers, but rather in its indication of the alertness with which every possible new use for cotton is seized upon and capitalized; for the promotion of new and extended uses for cotton is an organized business.

The heart of the campaign lies in the New Uses Committee, comprised of some 17 representatives of the U. S. Departments of Agriculture and Commerce and the Cotton-Textile Institute. As the movement was largely sporadic before the organization of the Institute it is only natural that this organization should assume leadership, but on the committee are representatives of numerous bureaus including the Bureau of Agricultural Economics, Department of Agriculture, interested broadly in growing and marketing of cotton; the Bureau of Home Economics, Department of Agriculture, interested primarily in cotton as clothing; the Bureau of Standards, Department of Commerce, whose work covers test methods, construction and special development problems; and members of the New Uses Section of the Cotton-Textile Institute, interested in anything that will extend the uses of cotton. The purpose of the committee is to avoid duplication of effort and to coordinate activities by taking advantage of the chemists, physicists and market specialists available.

Use in footwear. Durene fabric.

Summer hat constructed of cotton braid.

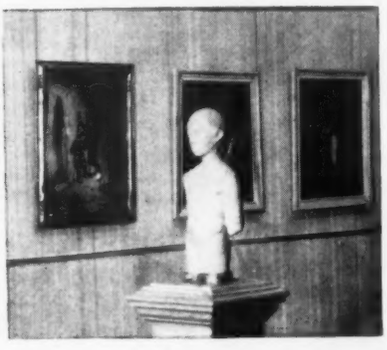
It is extremely difficult to give any direct answer to the question of how many yards of goods have been added to consumption through new uses promotion, due to the fact that many of the ideas have been taken up and exploited by those who would never think of reporting the yardage used. As an example, when the Institute proposed the use of cotton cloth as a base for repairing old roofs, some 30 inquiries



Over 92,000 sq. yd. of cotton have been used in the construction of the Navy's dirigible "Macon."

Using cotton cloth as a binder in road construction.

Panels in the house are made with fabric instead of stucco.



Tarlatan used as a wall covering in an art gallery.

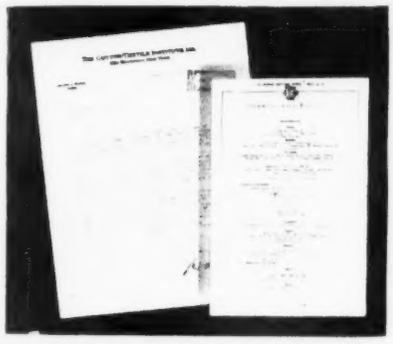
Constructing chicken house of sheeting over framework.

were received from construction concerns, but no check on actual yardage used was possible.

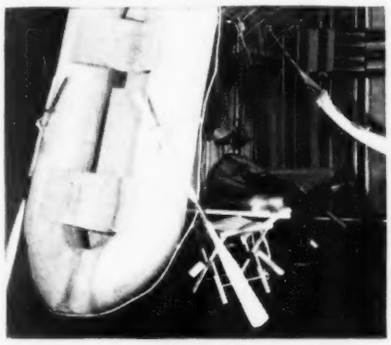
Some indication of what new uses can mean, however, is contained in a report issued by the Institute, in 1930, on cotton bags for agricultural products. A preliminary survey had been conducted by the Institute in 1929 and an important contribution made by a previous study conducted by the Division of Cotton Marketing of the Bureau of Agricultural Economics, U. S. Department of Agriculture. Following are the pertinent facts developed: (1) Estimate that there is a potential market for more than 400,000 bales of cotton in supplying cotton bags as retail packages for fruits, nuts, vegetables, etc.; (2) indicated annual potential market for 30,000,000 sq.yd. of material for cotton potato bags alone; (3) use of cotton bags for retail purposes five times as great in 1929 as in 1928.

One of the most intensive campaigns has been to substitute cotton bagging for jute in baling cotton and a significant victory has just been won in the acceptance of cotton bagging by common carriers on the same basis as other materials. In addition to the saving in freight, due to the weight factor, there is the potent consideration that this year's domestic crop will amount to something like 11,000,000 bales and that about 200,000 bales would be required to manufacture sufficient bagging to cover it. While cotton has been used extensively for flour bags, a survey shows that this market has potentialities at least twice as large as the

"Flexwood." A wood veneer backed by cotton fabric.



Cotton stationery has found extended use in many lines.



Collapsible rowboat for hunters, campers and fishermen.

Lithographed posters and banners for advertising purposes.

Lane marking is but one of the many diverse uses to which cotton fabrics are being put.

present use. Packaging of fruits and nuts is a field that is being developed rapidly. The A & P chain of stores alone used 2,000,000 bags for potatoes last year and expects to use 3,000,000 this year, in addition to experimenting with a 50 lb. onion bag. One Maine potato grower will use 5,600,000 bags this year.

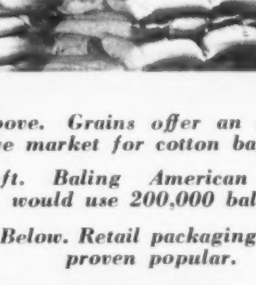
Charles H. Moorefield, South Carolina highway engineer, has just reported that, after six years of service, cotton fabric used as a bonding material has conclusively demonstrated its value in road construction. In practice, a secondary highway of the "top-soil" variety is graded and then lightly tarred. An open-mesh cotton fabric is applied while the tar is still sticky and then treated with hot asphaltic oil—sand or gravel being applied as top surfacing. The cotton fabric acts as a binder and waterproof blanket which aids materially in keeping the road in good condition.

The story of the promotion of the 108-in. sheet is perhaps too well known to be retold, but there are many other places where cotton has found additional use in and about the home. The Department of Commerce has issued a series of 11 bulletins dealing with the possibilities of the increased use of cotton, covering such subjects as play tents, automobile trunks, etc., while all such seasonal fads as sun-bath tents, wading pools and dressing tents have been exploited. In addition to normal domestic decoration, cotton has also found use as a well covering, either alone or in conjunction with wood veneer, as in "Flexwood" paneling.

Above. Grains offer an extensive market for cotton bagging.

Left. Baling American crop would use 200,000 bales.

Below. Retail packaging has proven popular.



In industry, cotton has also found diverse outlets, among which might be mentioned: route markers, traffic guides, stop signs, etc., where fabric is applied to the pavement; moulded and laminated specialties, the fabric being used in conjunction with synthetic resins to produce gears, industrial truck wheels, airplane propellers, etc.; cotton stationery used as letterheads, menus, booklets and advertising broadsides; cotton belting for power transmission; cotton uniforms for employees.

The use of cotton for clothing certainly cannot be called new, and yet the organized promotion of the material is comparatively recent. Back in 1928 the Cotton-Textile Institute conducted a survey which indicated a growing emphasis on cotton as a style fabric, and in February of the following year, capitalizing the previous style promotion of the National Association of Cotton Manufacturers, a campaign was initiated which has given cotton style acceptance. Hundreds of exhibits have been held and talks made to improvement groups. "Flashes of Fashion," a booklet giving the latest style news on cotton, was instituted and issues have been sent out about every three weeks to a request audience numbering up to 20,000. Once a season a swatch book has been put out, the swatches being picked by an impartial board of prominent style authorities.

One of the most interesting developments has been the increased use of cotton fabrics in men's wear. It is safe to say that more cotton suits were worn this last summer than at any previous time and enthusiasts state that only a beginning has been made. It is in connection with men's shirts that pre-shrinking first made its appearance in volume. Pre-shrinking processes have been described in TEXTILE WORLD, Dec. 5, 1931, August, 1932 and other issues. As pre-shrinking is extended in usage to include many other items there can be no question of the increased utility of cotton fabrics, and increased utility means new and larger markets. Still another technical development of interest is the "crease-proof" process, which was described in TEXTILE WORLD, September, 1932.

And still the list is not complete: cotton bags for trash; J. A. Hall, Jr., won $500 for suggesting a waterproof poncho of cotton in a competition for new uses sponsored by the Cotton Manufacturers Association of Georgia; cotton parachutes; cotton beach costumes; coal in convenient cotton bags which can be thrown on the fire directly and thus obviate the grime of shoveling; cotton neckties; and who can forget those cotton caps for men that magically made their appearance on every street corner last summer? Even C. K. Everett, manager of the New Uses Section of The Cotton-Textile Institute, who supplied most of pictures shown, has difficulty in recalling the many new domains of King Cotton.

ADVERTISING PAGES REMOVED

THE PERSONAL PAGE

JOHN M. MILLER, JR., Richmond, Va. was elected chairman of the board at the meeting of directors of Riverside & Dan River Cotton Mills, Danville, Va., on Oct. 5. ROBERT R. WEST was elected president and treasurer succeeding J. I. PRITCHETT who died Sept. 25; GEORGE P. RAY was re-elected vice-president and sales manager and GEORGE W. ROBERTSON was also elected vice-president.

FRED W. SYMMES, president and treasurer of the Piedmont Plush Mills, Greenville, S. C., and identified with other textile interests in that city, has been elected president and treasurer of the Union-Buffalo Mills Co., with plants at Union, Buffalo and Fairmont, S. C. He succeeds W. S. NICHOLSON, who recently resigned as president of the company to devote his time to other interests. FRANK E. WHITMAN, of New York, resigned as treasurer, but was elected vice-president. The change became effective Oct. 1.

DAVID I. MITCHELL, son of the late A. I. Mitchell, has been elected president of the Cyril Johnson Woolen Co., Stafford Springs, Conn. At the same time FRANCIS LUCE, his brother in-law, was named vice-president. CARROLL NEWELL is vice-president in charge of sales.

SAMUEL D. SAFENOVITZ has been elected president and treasurer of the New England Woolen Mills, Inc., Norwich, Conn., recently incorporated.

W. H. WHITEHEAD, Three Rivers, Que., has been named managing director of the Wabasso Cotton Co., Ltd., succeeding W. G. E. AIRD, who resigned a few weeks ago. Mr. Whitehead is the son of C. R. WHITEHEAD, Wabasso's president and general manager for a number of years. Mr. Aird has become general manager of the Montreal Cottons, Ltd., at Valleyfield.

WINFIELD A. SCHUSTER, textile manufacturer, East Douglas, Mass., has been renominated as the Republican candidate for Councilor for the State election in November. Mr. Schuster defeated MATTHEW P. WHITTALL, carpet manufacturer, Worcester, in the primary 37,212 to 23,529.

ANDREW C. IMBRIE has resigned as treasurer of the United States Finishing Co., effective at the end of August. He had been associated with the company for the last 18 years, prior to that time being financial secretary of Princeton University.

CLYDE MURRAY, vice-president of the Arnold Print Works, North Adams, Mass., has resigned.

FRED R. THOMAS, for 25 years general manager of Monadnock Mills, has accepted the position of general superintendent of BATES MILL, of which H. C. GREENLAW is agent. Bates recently took over the Monadnock.

W. B. SMITH, president of the Washington Mfg. Co., Tennille, Ga., has been placed in charge of operations at the Adams-Swirles Cotton Mills, Macon, Ga., and will divide his time between the two companies.

GEORGE R. WEST, JR., general manager of the Dixie Mercerizing Co., has been nominated to the board of governors of the Chattanooga Manufacturers' Association, subject to election Oct. 11.

W. S. Nicholson, who has resigned presidency of Union-Buffalo Mills

GEORGE SUMMERSBY has been elected president of Bradford (R. I.) Dyeing Association (U. S. A.). He was formerly general manager of Boston Mfg. Co. and lately has been executive vice-president of the Spencer Corp.

M. N. TWYMAN, manager of cotton and fabric purchases, B. F. Goodrich Co., Akron, Ohio, headed a group of Goodrich officials which started a trip through the cotton belt from Atlanta on Sept. 28. He was accompanied by CHAS. G. THOMPSON, manager of cotton and waste division, Martha Mills, Thomaston, Ga., a Goodrich subsidiary.

THOMAS ANDREW MCKEE, superintendent of engraving at the Southern Bleachery & Print Works, Taylors, S. C., is a brother of JOSEPH V. MCKEE who became mayor of New York City on the resignation of James J. Walker.

GEORGE B. CRAMER has been elected secretary of Cramerton (N. C.) Mills, Inc., succeeding H. L. MOORE, who held that office for many years. Mr. Cramer is the youngest son of STUART W. CRAMER, founder of the mills, and has for the last three years been associated with Galey & Lord, New York, commission merchants selling the Cramerton product.

SAMUEL PEARSALL has terminated the arrangement under which he consigned materials for manufacture to the Spencer (Mass.) Textile Corp. and honored for payment goods ordered over the signature of Geo. M. Pearsall. Samuel Pearsall is treasurer of the Worcester Textile Co., Valley Falls, R. I. The Spencer company grew out of Continental Worsted Mills.

ALFRED WALLWORK has resigned as head designer for T. J. Capper, Inc., Charlotte, N. C., to enter business in Charlotte on his own account as textile designer, sketcher and card cutter.

LEONARD J. BRONNER, associate sales-manager with HAROLD KRONTHAL, of the cutting-up trade sales division of Colonial Fabrics, Inc., has been appointed manager of the same division for Belding Heminway Corticelli Co., New York. He succeeds JULIUS LICHTER, resigned.

DEXTER L. LEWIS, formerly connected with the New England sales office of the Viscose Co., at Providence, R. I., has been transferred to the southern office of that company at Charlotte, N. C.

R. C. ANDERSON recently resigned as sales manager of the Carolina Dyeing & Winding Co., Mount Holly, N. C., and has formed a connection with the American Yarn & Processing Co., also of Mount Holly, as sales representative with headquarters in Charlotte, N. C.

J. R. DOVER, JR., has been elected president of Eton Mills Co., Shelby, N. C., a new corporation formed to take over the Eastside Mfg. Co. FRED R. MORGAN was elected vice-president and secretary, and CHARLES D. THOMAS, treasurer.

HAROLD JUDSON, formerly with the Cyril Johnson Woolen Co. and Princeton Worsted Mills, has joined the Yorkshire Worsted Mills in the capacity of styler of the lines of the Halliwell Worsted Mfg. Co.

WILLIAM L. DILLMUTH became associated with Pacific Mills, New York, on Oct. 1, to take charge of a new wash goods department, catering to the retail trade.

FRANK CREIGHTON, former superintendent of the Fabyan (Conn.) Woolen Mills, has become associated with the newly organized Hillcroft Woolen Co., which plans to operate a mill at Wales, Mass.

M. T. POOVEY, formerly general superintendent of the Carolina Textile Corp., Dillon, S. C., has been appointed assistant superintendent of Hannah Pickett Mills No. 2, Rockingham, N. C.

Obituary

WILLIAM JOHN BOWEN, aged 79, proprietor of Cedar Falls (Iowa) Woolen Mills which he established in 1926, died recently after 59 years in the industry.

CHARLES ARTHUR ROOT, treasurer, Uxbridge (Mass.) Mills, died on Sept. 25. He began his career with C. & S. Wheelock, was with Calumet & Hecla Mills and headed C. A. Root & Co.

EDWIN HADLEY, aged 60, southern representative of Waterman, Currier & Co., with headquarters in Charlotte, N. C., died suddenly while on a business trip Sept. 16.

JOHN J. GEORGE, aged 58, formerly president of the Vivian Cotton Mills, Cherryville, N. C., was killed in an automobile-train collision, near Kings Mountain, N. C.

C. H. COLE, manager, Opp Cotton Mills and the Micholas Cotton Mills, Opp Ala., was killed there Sept. 9. Mr. Cole was 69 years of age.

FERMIN TANQUIS, aged 73, developer of the long staple Peruvian cotton, known as the Tanquis grade, died recently at his home in Lima, Peru.

GEORGE GREENLIEF EMERY, aged 66, superintendent and general manager of the Sanford (Me.) Plush Mills and associated with the corporation for 40 years, died at his home here.

JOSEPH G. MANSFIELD, aged 53, superintendent of Greylock Mill A of the Berkshire Fine Spinning Associates, died in his home in North Adams, Sept. 14.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in August is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Value of a Mill Newspaper" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers' R

THE VALUE OF A MILL N

"WHAT I would like to hear this morning," Superintendent Chase began, after the overseers were seated, "is a frank discussion of an idea that occurred to me the other day. Tom Morgan, whom some of you know, sent me two or three copies of a little newspaper that is published for the Riverview people. It contains a lot of village gossip, news about the baseball team, doings of the community clubs, and all that kind of stuff, as you will see when you glance through these copies. They have been very successful, so Tom tells me, in stressing a safety campaign through this weekly paper. I am wondering if it wouldn't pay us to publish such a newspaper. What do you think of the proposition?"

"What we have needed for quite a while," Pete declared, "is something that will develop closer personal contact between the mill management and the people of our community. It seems to me that a little newspaper, such as the one they get out at Riverview Mills, would help a lot toward promoting a better understanding between the officials of the mill and our workers. There's nothing like a good, live news sheet to develop the old community spirit and it would be just the thing for important announcements. The cost of printing three or four hundred copies a week wouldn't

Keeping Trade Secrets

Editor, Overseers' Round-Table:

ALL OF the better textile companies now have their individual research departments. It is an unquestionable fact that, sooner or later, each one of these companies will discover a process or trade secret that will put a new zest into business by increasing efficiency, or adding to the quality of the product.

But we are all out to make a better product that can be sold at a cheaper price. Every new devolpment helps to bring us closer to this goal. With combined knowledge and thorough cooperation between companies this goal is attainable; otherwise it is a forlorn hope.

Each new development, each new discovery, requires further research to bring it to perfection. This, one company may not be able to do, or unable to afford. Yet, if all companies in the field are notified of the discovery, and all work on it together, it is an inevitable fact that perfection will be attained sooner. That is not all, however. It is quite possible that the new discovery is something that is not nearly so valuable as the producer might believe at first knowledge, and this might prove very costly to him. But with information and devices traded, ideas and discoveries that are worthless are bound to be weeded out.

It is the opinion held by our company that, although a producer might forge ahead of the field by himself, this would not last long against the combined knowledge of the rest of the companies, and in the long run he would suffer greatly thereby, because of an inferior quality being produced with inefficient methods.

WILL HERMAN,
Supt. Tanenbaum & Sons Co.

Editor, Overseers' Round-Table:

YOU MAY try to hold something secret if you wish to, and if someone else sees or hears about it, it is no longer secret. From a general nature we see that all people are prone to get under cover and try to find out about things which they are rightfully entitled to.

Employees travel from mill to mill, from State to State, and will reveal and discover things that are unknown to other people, and many times will reveal things to his latest employer that he had learned or observed while in the employ of some other mill or company. To try to conceal so-called "secret processes" is almost inconsistent, yet one should not try to advertise or circularize the fact that he is enjoying something that he has discovered by his own research that is not known generally to the industry.

By cutting off all association of fellow overseers and superintendents one makes oneself so small that when he does get the opportunity to learn something from a visit of some kind, usually he tries to grasp so much that he cannot absorb the information without some confusion with those brain cells that have been rather inactive by decreasing the normal sphere.

F. L. BYRD.

Editor, Overseers' Round-Table:

WHILE IT can be said that some processes are worth keeping secret, the majority are not worth the trouble. A firm may expend considerable time and money bringing out a new process and it is only natural that endeavors should be made to keep it secret. Too often, however, firms try to keep secret what may really be called general practice. They consider little improvements as secrets. If these ideas were freely interchanged, discussion would arise and the idea would probably be developed farther.

Letting everyone know what a firm can do is good advertising and assists sales. Too much secrecy retards progress; too much secrecy prevents criticism which is essential to development. In the present highly developed state of industry, there is no room for secrets. Practically all that was thought secret a few years ago is now common knowledge. W. E. WARNER,
England.

Editor, Overseers' Round-Table:

I HAVE often heard it said that if a man tells everything he knows, everybody knows more than he does. When we go ahead and develop a new process, if we tell every one about it our competitors have the jump on us from the fact that they have the benefit of our ideas as well as their own.

I am strictly in accord with Bill's idea: If we have a better way of doing things than the other fellow let's keep it to ourselves and reap the benefits. W.H.J.

Editor, Overseers' Round-Table:

WHILE I do not believe in shouting from the housetops about new methods, etc., my experience has shown me that an air of great secrecy about such things tends to advertise the existence of them and whet the desires of many people to know more about what may be behind the veil. The "grape-vine telegraph" runs directly into competitors' headquarters, and where a number of one's own employees know about any inside improvements there seems always to be one or more individuals in-

Round-Table

NEWSPAPER

be very great and perhaps we could get one of the boys at the office to serve as editor. My vote is in favor of the idea."

"We had a paper where I was several years ago," Bill spoke up, "and, if you don't mind a little cold water on your proposition, I don't think it's worth the trouble and expense. In the first place, we soon discovered that some of the help thought the company was trying to dictate to them through the editor of the newspaper, and they were always cracking jokes about the editorial applesauce and the moral lectures that they were supposed to swallow. Pete spoke of announcements. If you ask me, the bulletin boards in the different departments are the places for announcements; and, as for gossip, some of the women in this town can give you more in ten minutes than could be printed in a dozen issues of a newspaper. It is my opinion that we could spend our money to better advantage than in the publication of a house organ."

► **Would *you* recommend the publication of a newspaper or house organ by your mill?**

discreet and incautious enough to let out vitally important information, although perhaps unintentionally in most cases.

Improvements may be made without "horn tooting" to advertise their existence in one's plant, and to me it seems much better to skim the cream of anything's possibilities quietly, without attracting attention by trying to hide behind a noticeable veil of great secrecy. If competitors desire to imitate, they can do so on information secured "a la Sherlock Holmes," so why isn't it better to realize to as great extent as possible such benefits as may be in new methods, new attachments, new processes, etc., on the quiet in an unspectacular way before any sleuthing can enable competitors to catch up; and refrain from advertising our activities with a veil of secrecy which makes existence of something different very obvious.

H. H. Iler,
Union Bleachery.

Editor, Overseers' Round-Table:

Bill and Pete take extreme views on this matter of "secret" processes. I disagree with both of them. I wouldn't invite my competitors to come in and see some nice little short-cut I have developed, nor would I label any mill process a holy-of-holies or hold it as a ritual to be performed only behind locked doors by the chosen and sworn few. Let's just be sensible and matter-of-fact about it.

Any man who devises an efficient method or a useful process is certainly entitled to all the return and benefit he can in decency make from it. There is no sense in making it common property over night; nor is there sense in the worry and isolation that comes from treating it like a woman in a Turkish harem. Rather talk about it in the proper time and place, among those, whether coworkers or competitors, who will understand the problem and who will add constructive suggestions which will help you toward further improvement. Only by airing your plant methods can you be sure that you're not like Pete's friend, following a practice that others discarded years ago.

However, don't give away your discoveries for nothing. Let experience be your guide in selecting for listeners those whom appreciation will stimulate into giving you something in return. A hermit will never add much to material progress; he ends where he begins. The spendthrift is worse; he ends far below where he begins. The prudent man gets his money's worth for what he spends, whether it be money or ideas; he is in line for progress and advancement.

D. B. W.

Editor, Overseers' Round-Table:

I believe that in the automobile industry there is some sort of agreement whereby the owner of a patent will allow others to use it, sometimes on a royalty basis, after one year. In other words, the originator of an idea has exclusive use for one year, but after that time the idea must be made available to the industry as a whole. It is obvious that the rapid strides made by the automobile industry have been in no small part due to this idea of pooling the advances made by individual concerns.

If a plan similar to that outlined above could be devised to handle the new processes developed in the textile industry, it would be to the benefit of all concerned. The industry would undoubtedly progress at a more rapid rate if each helped the other. While it may be argued that the dumb concern is able to get the benefits of the work done by the more progressive, the originator gets the jump by one year; and if you give a smart concern the start of one year the backward concern never will catch up.

I have found that, with a few exceptions, the most up-to-date mills are those that have the least air of secrecy. Such concerns do not rush around telling of what they are developing, but after they have worked things out to their own satisfaction and consolidated their market position they are perfectly willing to let anyone see what they are doing. I think that if more mills had the same attitude the results would approximate those obtained where there is a patent pool.

W. E. J.

SUMMARY

Keeping Secrets. *About 62% of the letters voted in favor of the free interchange of new ideas, stating that trying to keep a new method or process secret retarded the progress of the industry as a whole and, in many cases, created a narrow-minded attitude in the concern itself. Another point brought out was that it was almost impossible to keep a secret anyway and an air of secrecy only attracted attention. The 38% who believed that anything developed in the plant should be kept quiet based their opinions on the premise that development cost money and there was no reason why competitors should be given the benefits free.*

▼

Overseers and Costs

Editor, Overseers' Round-Table:

When overseers are once employed, they must be trusted. If they are not, sack them. I am confident it will be in the mill's interests if the overseers know the costs of their respective departments. Just as in sports, when an athlete knows the previous record he tries to beat it, in the same way if an overseer knows the minimum costs record he will surely try to beat it. Costs of the department to an overseer are as essential as the patient's report to the doctor.

P. B. J.

QUESTIONS AND ANSWERS

Dyestuff Affinity and Mercerization

Technical Editor:

I am submitting a pair of mercerized stockings which came from the same dyebath. You will note that there is an appreciable difference in the shade. The formula which we used for 120 doz. stockings is as follows: 3 oz., 300 gr. Catechine; 3 oz., 300 gr. Solantine Black L; and 300 gr. Erie Pink 2B. I shall appreciate your opinion as to the cause of the difference. (7861)

The difference in shade, in our opinion, is due to the fact that the yarn used in knitting was not uniformly mercerized. It may be that the hosiery was knit from cotton coming from different lots, and it is quite evident that yarns are different in size. The lighter shade is of a finer count than the yarn in the darker hose.

The dyer cannot be held responsible for this uneven batch or for any similar lot coming from the dyehouse containing several shades in the batch. Cotton, when mercerized, acquires an increased affinity for dyestuffs, the higher the mercerization, the greater the affinity of the cotton. If yarn is processed by two companies, or sometimes by the same company from different lots of cotton, a difference in the degree of mercerization is likely to exist. If the mercerization bath is not properly controlled from beginning to end, trouble is sure to ensue in the finished fabric; and no amount of care in the dyehouse will overcome defective goods.

The fact that the hosiery is dyed evenly in both shades is proof that nothing is wrong with the dyeing formula. We have noticed that in the lighter shade there are a number of spots in the leg caused by dry dyestuffs that have collected on the hose This indicates carelessness in the dyestuff stock room. Such carelessness should not be tolerated, as it is easy to keep the dyestuffs away from drafty corners and from spilling on tables or shelves to be carried on to the dyehouse, boarding room, or any place where they can do damage.

▼

Woolen Wears Poorly

Technical Editor:

I am enclosing herewith a swatch of woolen cloth which we use for women's garments. The feel of the cloth is satisfactory, but it has poor wearing quality and also balls up badly after being worn a short time. We shrink this cloth in the grease with palm-oil soap, scour with the same soap, and dye in the piece. We wet-nap on a double-acting napper. Drying is done on a chain dryer and the goods are sheared a triffle to even nap. Will you advise us where the trouble lies—in the stock blend, weaving, or finishing? (7927)

The amount of cover left on this type of coating gives it every chance to pill or ball after being worn; and while there is no doubt that the quality of the yarn has much to do with this trouble, it could be helped considerably in the finishing of the fabric.

We suggest that a reasonable amount of napping be given before fulling, so as to full the cover into the body of the fabric. This will help to hide your weave and will give you more density. The amount of cover can be lessened when the final napping is done and the shearing can be much closer than in the sample submitted. If the goods in the grease are too wide for the napper, it is possible to full halfway, extract, and nap is suggested, returning to the mill to complete the fulling process. The shearing must be closer on this quality of coating, or pilling or balling will result.

▼

Defect in Ratine Fabric

Technical Editor:

We are inclosing a sample of rayon ratine yarn, together with a piece of the fabric knitted from it. These yarns were washed because of the odor, and re-dyed. We shall appreciate your opinion as to the cause of the skips or holes and weak places in the material. (7911)

Some of these imperfections are due to drop stitches, and others from broken ends. The stitch seems to be rather tight for this type yarn; and this was probably the cause of most of the broken yarn. The drop stitches probably were caused either by improper setting of the yarn guides or by incorrect tension on the yarn. The yarn comes off the cone quite freely, and if this were not taken care of before it reached the needles, loops and slackness in the yarn would result, causing the needles to miss the yarn occasionally.

▼

Streak in Printed Silk

Technical Editor:

We enclose a sample of printed georgette in which you will notice quite a distinct streak running across the goods. We have printed large quantities of this pattern and have run into this difficulty on the last lot only. The mark repeats throughout the lot in all colors at irregular intervals of about 2 yd. to about 10 or 15 yd. As the print roller is about 15 in. in circumference, the streak obviously is not a repeat on the roller. In fact, we cannot account for it as a mechanical repeat because of the irregular intervals. Is it possible that some yarn difference could account for it, or is there any chemical with which the goods might have come in contact? (7926)

We are quite certain that it is not any difference in the yarn which causes this defect, as the streak does not follow one pick across the fabric. On the side of the streak where the goods appear darker the small diamonds formed by the cross work of discharged lines are sharp and clear cut. On the light side of the streak the discharge has run into the diamonds. These areas of the goods appear to be considerably lighter in color, and in contrast to the normal print, give the appearance of streaks. The running of the white discharge is not exactly in the nature of a halo, which often surrounds a large blotch, but seems to be a print lacking in sharpness as if the doctor had suddenly ceased to cut clean. It might be caused if the discharge paste suddenly became much thinner, or if back-gray and blanket became thin all at once. It will be necessary to examine the machine while it is running on these goods in order to discover the exact cause of the streak, which would not be noticeable on an ordinary or floral design, but is magnified by the almost mathematical nature of this pattern. If you will watch the machine for any irregularity that would vary the clear cut of the impression, we believe that you will be able to discover the source of the trouble.

▼

Bleaching and Dyeing Sewing Threads

Technical Editor:

We are interested in the bleaching and dyeing of cotton and silk sewing thread. What, in general, are the procedures followed? (7869)

Silk thread may be dyed with basic, acid, vat, and many of the direct dyes. While mordant dyes have little affinity for the silk fiber itself, if a metallic mordant is used as a pretreatment, these may also be employed. Cotton, unless mordanted, has little affinity for basic dyes, and acid dyes are not suitable as a class. Cotton, however, has an affinity for direct developed, naphthol, sulphur, and vat dyes.

The methods of dyeing vary in detail with the class of color employed. For example, in dyeing silk with acid colors, water and boiled-off liquor would be used, acidified, and heated to 100°F. before adding the dyestuff. Either sulphuric, formic, acetic, tartaric, or citric acid can be used to acidify the liquor. The silk would then be introduced and the dyeing carried out. If direct colors are used, the silk is dyed with the addition of glauber salt and acetic acid to the dyebath. Direct colors may be applied to cotton with the use of salt and a dye assistant. Vat dyes are applied in an alkaline hydrosulphite bath. Silk may be bleached with sulphur dioxide, sodium hydrosulphite, potassium permanganate, sodium perborate, or hydrogen peroxide. Each process differs in formula and application. Cotton is now bleached by the liquid chlorine process, by the sodium and calcium hypochlorite processes, or by the hydrogen peroxide process. In the peroxide process, cotton is bleached at the boil after a short preboil in a bath containing 1% caustic soda, 1% penetrating oil, and 6% soap. The goods are then given a hot wash and bleached in a bath of 1% caustic soda, 5% silicate of soda and 3% hydrogen peroxide. In the case of light-colored peelers, the bleach may be completed in 4 hr. For Egyptian cotton a longer time, and generally a second bleach, is required with the same amounts of caustic, silicate, and peroxide. The goods are then given a hot soap wash, blued, and finished as required.

Silk may be bleached, without a prelimi-

QUESTIONS AND ANSWERS

nary boil-off, in an open tank with silicate of soda, borax, and hydrogen peroxide, a caustic solution being regarded as rather severe on silk.

In some cases, however, silk has been bleached in skeins in a cotton bleach bath of hydrogen peroxide with no pre-boil, and without any apparent injury to the silk, the silk bleaching being of course completed in a much shorter time than the cotton.

▼

Finishing Rayon Ribbon

Technical Editor:

I am inclosing a sample of rayon ribbon and shall appreciate your advising me as to whether this is yarn or piece dyed and if it has been finished in any way. (7902)

This material has been finished, as is evidenced by the even, mirror-like surface it presents, and also by the additional width to which it will conform on being slightly moistened.

We believe that it has probably been subjected to a light starch or gelatin mixture applied in a regular finishing machine. Whether or not the material was piece dyed or yarn dyed is impossible to ascertain with such light-weight goods; but the fact that the material has been finished after weaving leads us to believe that the goods have been piece dyed.

▼

Defect in Mercerized Hose

Technical Editor:

We are enclosing herewith two mercerized stockings showing a very noticeable case of uneven dyeing in the form of tiger stripes. We are at a loss to determine the source of this condition and shall appreciate your opinion. Also we shall appreciate your suggesting some way to remedy or cover up this defect. (7858)

It is our opinion that the variation in shade is due to uneven mercerization. We know of no better way out of the difficulty than to strip the color and redye the goods with a good black.

There is a possibility that you may be able to cover up the defect with some of the very dark colors other than black. It is undoubtedly a task for a skillful dyer.

▼

Lenos with Steel Doup

Technical Editor:

I am inclosing a diagram showing the weave for a leno fabric. With this I am giving a drawing-in and chain draft showing how this would be woven using bottom doups of stout cord.

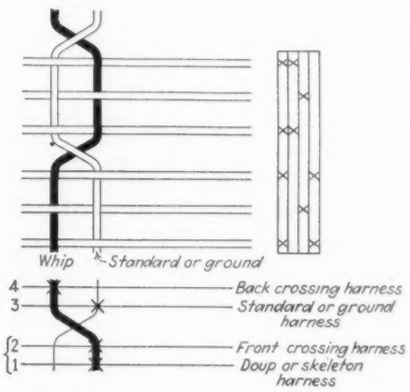
Will you be kind enough to furnish me with the drafts and an explanation, showing how this same weave could be made on bottom doups of the steel-heddle type. (7898)

This is a very simple weave repeating on two ends and six picks. We offer a harness and chain draft showing how this weave should be drawn and woven on flat steel doups. Only one set of doups has

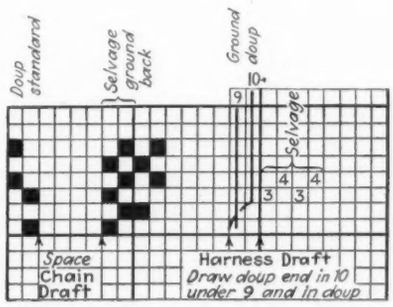
been considered. The number of doup sets required will depend largely on the sley of the cloth to be woven and the counts of yarn used for the warp.

A flat steel doup unit takes up more space than does an ordinary flat steel heddle, and it is well to consider this important factor when laying out lenos to be woven with this type of doup.

The sketch sent with the inquiry is



Leno diagram submitted by inquirer



Chain and harness drafts for leno

drawn incorrectly. The doup end is always on the top of the filling when crossing from open to cross and from cross to open shed; and, while the ground ends are drawn in the harnesses above the doup end, the order of weaving is such that, when the ends are crossing, the ground end is always below the filling on the pick on which the crossing is made. The only time that the ground ends are raised above the doup end and filling is when a plain shed is being woven. In this case, the doup and standard are lowered to the bottom shed and the ground end is raised to the top shed.

In stringing up the harnesses for a leno of this type, it is well to leave a space of about four harnesses between the doup units and the selvages. This is done for the purpose of making an easy passage for the doup when it is changing from open to cross shed or from cross to open shed. If the ground and back are located too near the doup units, the angle of the warp yarns is too abrupt, and this has a tendency to wear the yarn and cause bad weaving.

▼

Silk Sizes for Hosiery

Technical Editor:

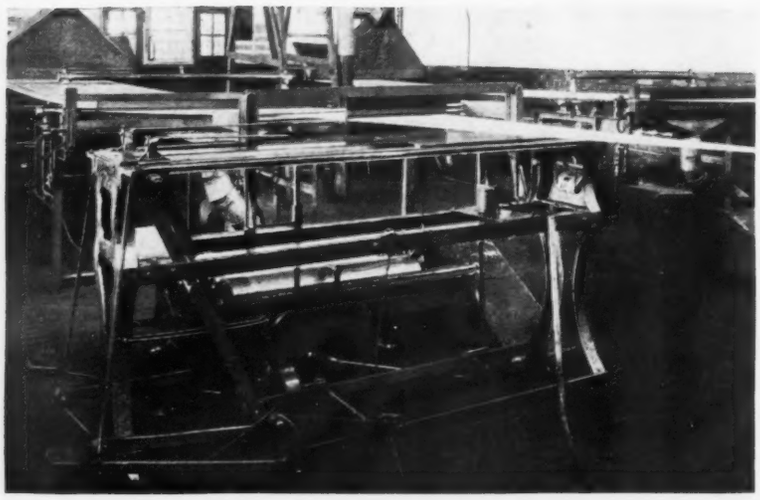
Our hosiery is made from 13/15 silk, and we are wondering why 20/22 silk would not prove just as satisfactory if we should use four threads instead of five, for example. We should like to know the relative advantages and disadvantages of of the two types of yarn for hosiery. (7914)

With respect to the relative advantages and disadvantages of 13/15 and 20/22 silk, you had best settle your own problem, based on manufacturing experience and trade reactions. While 20/22 silk has been employed to some extent in the manufacture of full-fashioned hosiery, the great preponderance of the production is from 13/15 silk. The 20/22 silk is considered most generally suited for the weaving trade.

You ask why a four-thread 20/22 denier cannot be used in place of a five-thread 13/15. We believe that you selected this particular comparison thoughtlessly, because the calculation of denierage answers this question in itself. A five-thread 13/15-denier silk is equal to 70 denier, while a four-thread 20/22-denier is equal to 84 denier, or six-thread 13/15 silk. Accordingly, it stands that a stocking made of four-thread 20/22-denier would have to be knit much looser than a five-thread 13/15-denier or much more silk would be consumed in producing the stocking. It is also possible that, in producing the looser-knit stocking in order to hold the weight of the stocking to the desired point, much of the desired results in finish and appearance would be lost as compared to the original five-thread 13/15 stocking.

Again, it is reasonable to suppose on the law of averages that a 20/22 silk will not run so evenly as a 13/15, because the coarser denierage will naturally show a relative increase in unevenness over a finer denierage.

At certain times in the silk market there is quite a differential in the prices between 13/15 and 20/22, the heavier denierage being appreciably cheaper. Under such conditions, where a manufacturer is producing, say, a four-thread stocking, with six-thread top, he might find a slight price advantage in using four-thread 13/15 in the boot of the stocking and four-thread 20/22 in the top, thus giving the original balanced weight of his stocking and at the same time a slightly lower raw-material cost. The same procedure might be carried out in splicing yarns such as high-spliced heel, double sole, and reinforced toe. But we doubt the advisability of such procedure, especially with the prices of the two different denierages as close together as they are today. Even though there were a wide spread between the two prices, we still think, on account of the difference in nature of the two silks and their responsiveness to knitting-machine adjustments, dyeing, finishing, etc., that the use of 20/22 silk for the production of full-fashioned hosiery is a matter which should be approached with a great deal of caution.



Automatic Leasing Device for Ball Warps

THE processes of singeing and ball warping, widely employed in the combed-yarn and warp-mercerizing plants, can be speeded up by means of an automatic leasing device recently developed and patented by David A. Day, assistant superintendent of the Rex Spinning Co., Gastonia, N. C. Several of these devices have been installed in combed-yarn spinning plants in the Gastonia area.

The device is applicable to any type of warping or gassing machine, but the installation shown in the accompanying illustrations is operating in connection with Cocker's gassing machine and ball warper, with a Lestershire magazine creel, pulling the yarn over the ends of spools. The speed of these particular machines is 165 yd. per min. when gassing the yarn, and 225 yd. per min. when warping without the use of gassing equipment.

In handling yarn in warp form, both in singeing and ball warping, it is customary to take a lease approximately every 500 yd. during the process. The usual practice of taking the lease by hand, which includes stopping the machine, inserting lease rods and threads, tying the threads in position, and then starting up the machine, ordinarily requires about 1 min. or slightly more.

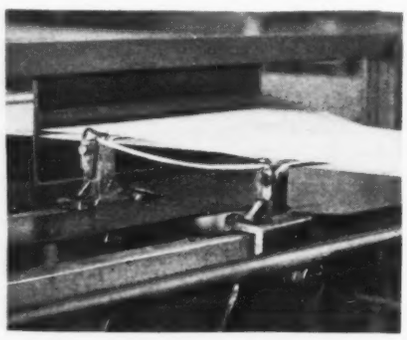
In the case of the singeing machine, it is necessary to move some types of singers forward along the warp to provide a singeing operation to take care of that portion of the warp that has passed through the machine after the gas burner has been removed from contact with the yarn. These operations connected with hand leasing, in view of the fact that about eighteen leases are taken in an average 9,000-yd. ball warp, necessarily involve considerable loss of production while the machine is not in motion.

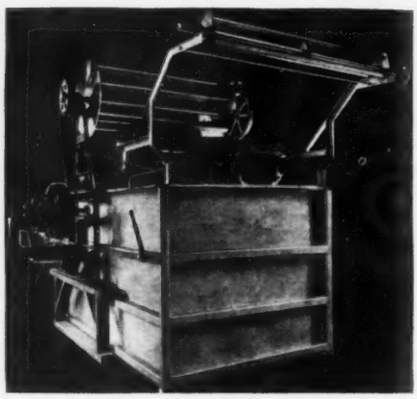
The new automatic leasing equipment, which is being manufactured and sold by L. E. Wooten, of Charlotte, N. C., vice-president of the Lestershire Spool & Mfg. Co., makes possible the leasing of warps at the desired interval in the process of warping or singeing while the machinery is in motion. An electrical device connecting the measuring wheel with the let-off on the leasing machine is so arranged that the lease can be put in the warp at any given point without stopping the warper.

The principle and operation of the device will be readily understood from a study of the accompanying photographs. Illustration above shows the mechanism inoperative. It is located on a steel frame between the gassing machine and the ball-warper head. The slotted fingers at the left are normally held away from the warp against the pull of springs by an electric magnet but are automatically released by the magnet at the proper time for making the lease. While the warp is running, the operative arranges the lease thread on the fingers. The warp is properly opened to receive the fingers by means of a lease reed. The fingers enter, the warp closes as shown in illustration below, the operative ties the lease thread, and the fingers retreat.

The installation in the Rex Spinning Co., running on 58/2 combed yarn, making 8,000-yd. warps with leases every 500 yd., has increased daily production approximately 50%. Before the automatic leasing device was installed, an average production for the day shift was eight warps of 8,000 yd. each, on the combination gassing and warping equipment. Actual production figures kept since the automatic leasing device was installed show that from eleven to thirteen warps of 8,000 yd. each have been taken off during the single shift. On Aug. 17, for instance, the equipment operated in the gassing and warping processes without stopping, except for doffing full warps, a continuous stretch of 18,000 yd. on 58/2 yarn. It was found also that a saving of approximately one-third was made in the cost of fuel used in gassing.

On Aug. 15, in warping 58/2 yarn, 378 ends, 8,000 yd., without the gassing process being used, running 225 yd. per min., production amounted to 94,000 yd. in 8 hr. of operation. This rate of production on the equipment at Rex Spinning Co. is considered about normal. The leasing device is being used at the present time on 58/2, 88/2, and 120/2 combed yarn, but is suitable for practically any range of work on warpers running up to 600 yd. per min.





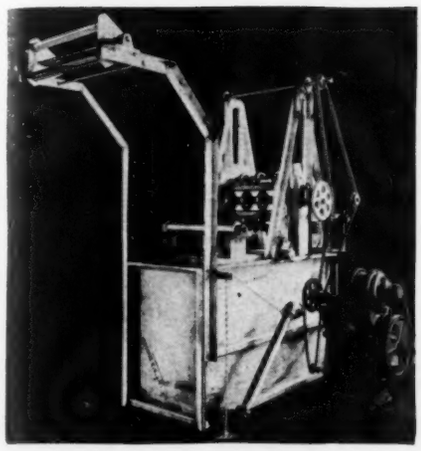
Improved Dye Kettles

THE piece dye kettle illustrated above is a recent development of Riggs & Lombard, Inc., Lowell, Mass., and includes several improved features. The self-supporting tub, which is made entirely of 18-8 stainless steel, is not connected in any way with the drive or reel stands. Therefore, the tub is not subjected to driving strains, belt pulls, or to the weight of the reel and cloth running over it. There are no frames to restrain expansion in any direction of the tub portion. The tub is not fastened to a foundation but merely rests upon suitable concrete piers.

All portions of the machine, including davit arms that support the unloading roll, unloading roll itself, steam coil, pins, pin rail, all parts of the main reel, inside and outside of the tub, the drain, and front roll, are made of 18-8 stainless steel, thus eliminating chance of rust stains. The only iron parts are the reel stands and the driving mechanism. This same type of machine is also offered with a new chrome nickel alloy in place of the stainless steel.

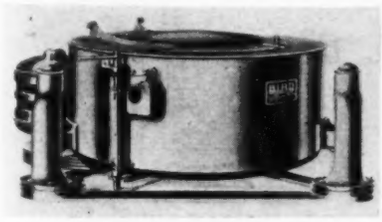
Another recent addition to the Riggs & Lombard line of dyeing machinery is the "Universal" sample kettle which may be used for any length of sample from two yards to 45 yards. This is said to have a distinct advantage over the old-style sample dye kettles, as it has heretofore been necessary to have several sizes of kettles, each one adapted to certain specific yardages and kinds of fabrics. The reel of the new sample kettle, as shown below, is adjustable vertically above the top of the tub simply by turning a hand wheel, the reel being held in position by ratchet and pawl. The Llewellen variable speed transmission makes possible any desired reel speed from

AND PROCESSES



4 to 40 r.p.m. The reel itself may be a hump reel, as shown in above picture, or it may be changed to a slatted reel merely by removing the humps. The machine is said to be large enough to be used in production work for handling one string of medium or heavy weights, or two strings of light weights.

As this sample kettle is constructed of stainless steel or chrome nickel alloy throughout, any color sequence may be employed, while a short bath may be used on short lengths. Even if the goods strike above the liquor line, according to the makers, they will immediately decend into the bath, as the metal surface is absolutely smooth. Patents on this machine are pending.

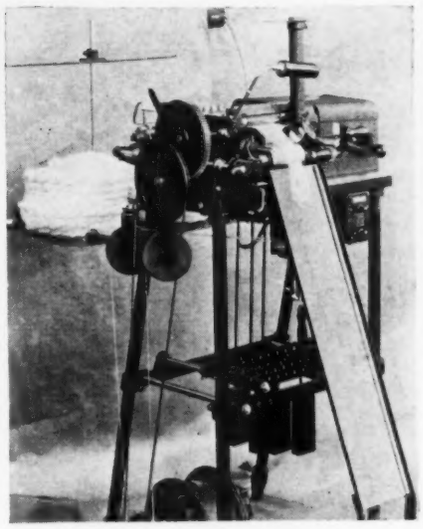


Gyro-Balanced Extractor

SAFETY and increased productive capacity are claimed for the new extractor introduced by the Bird Machine Co., South Walpole, Mass. The centrifugal extraction force developed by the Bird Gyro-Balanced extractor is said to reach a maximum of 510 times gravity, but the speed can be reduced for special operations in which such powerful extraction is not desirable. The baskets are designed with extra depth and extra width of top ring and the machines are built and powered to take advantage of this increased capacity.

The new extractor is a development of the familiar link-suspension type. The entire assembly is suspended by ball-bearing-mounted links from three heavy, steel pedestals, which in turn are rigidly mounted on a triangular steel bed plate. The links are carried at top and bottom in free floating ball bearings. Each rotating part of the extractor is dynamically balanced, by itself, before assembly.

Precautions have been taken to make the machine safe. All stress-bearing members are of steel, joints are welded, hoops which support the basket wall are set on edge, for greater stiffness and strength, and are machined on the inside to the true diameter of the basket. An interlocking safety latch permits the cover to be lifted when the machine is stopped, but prevents any movement of the cover when the basket is in motion. Extractor baskets are supplied in a variety of resistant alloys and coverings to meet specific requirements. The new machines are made in five different sizes, ranging from 40 in. to 96 in.



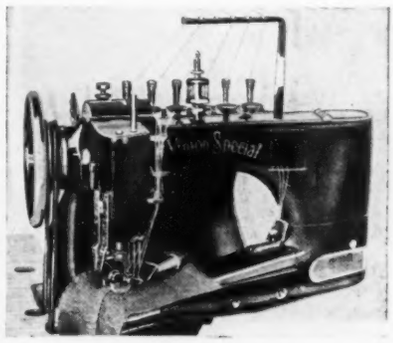
Roll Spacing Determinator

CORRECT roller settings, drafts and weights from drawing frames to spinning frames, according to the manufacturers, can be determined by an experimental machine known as a roll spacing determinator, recently announced by The Belger Co., Watertown, Mass., exclusive selling agents for this equipment in the United States, Canada and Mexico. This device also can be used in testing all qualities and mixtures of cotton for spinning purposes. Roller settings, drafts and weights can be changed by means of levers and cranks while the machine is running, without the necessity of making calculations, and by means of a tension lever in connection with a viewing device, the correct roller spacing may be found and read directly from a millimeter scale.

It is claimed that this machine, which was exhibited to the public for the first time at the last Leipzig Fair, will enable the cotton mill to determine the settings that will give the highest breaking strength and evenness, and with the correct weights the most favorable drafting conditions.

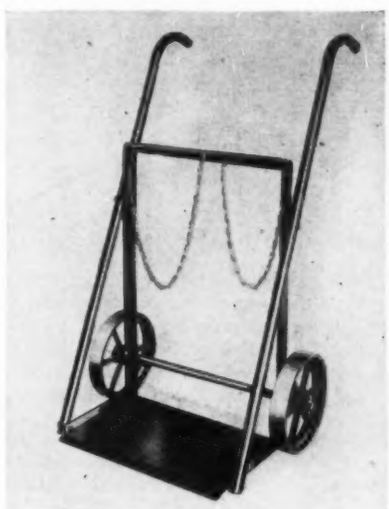
Ferox Process

THE Celotex Co., Chicago, has announced the development of a process for treating Celotex in the wet stages of its manufacture to prevent attacks from cellulose destroying insects. This method, known as the "Ferox" process, is not a surface treatment; but is such that individual fibers are coated with a chemical complex which is toxic to fungi, termites and other cellulose destroying organisms. This chemical complex, according to the manufacturers, is insoluble in water, non-volatile, odorless, permanent, and does not alter the physical characteristics of the fiber board.



Improved Felling Machine

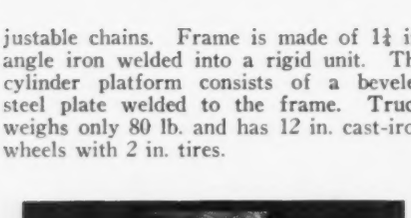
FOR triple-stitch feed-off-the-arm felling on work garments, an improved sewing machine has been developed by Union Special Machine Co., Chicago. It was designed to provide practically automatic feeding without the necessity of slowing down to cross seams. The principal mechanical feature of this machine, which has been designated as Style 35800 R, is its "tractor-type" feed. Its action in riding over thick seams at full operating speed is suggestive of the endless-crawler type of tractor. It is claimed that the seam can be matched accurately without the operator having to hold back on either ply to make the material come out even. The "tractor-type" feed can be applied to Union Special machines, Style 35800 P and Style 35800 Q.



Cylinder Truck

DESIGNED for easy conveyance of welding or cutting outfits is the No. 5 cylinder truck recently introduced by the Linde Air Products Co., New York. This truck is said to insure firm support for oxygen and acetylene cylinders as they are held firmly in position by means of ad-

justable chains. Frame is made of 1¼ in. angle iron welded into a rigid unit. The cylinder platform consists of a beveled steel plate welded to the frame. Truck weighs only 80 lb. and has 12 in. cast-iron wheels with 2 in. tires.



Chromium Plating Unit

DESIGNED to meet operating conditions in the machine shop is a compact chromium plating unit recently introduced by United Chromium, Inc., New York. All parts are assembled on one base. This unit is suitable for chromium plating drills, taps, reamers, files, dies, punches and parts of textile machines subject to wear.

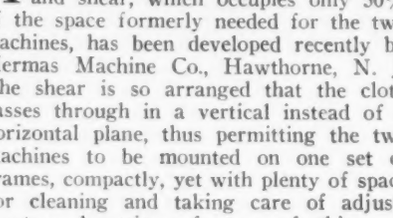
Propeller Type Pump

FOR handling relatively large volumes of liquid against comparatively low heads, a new propeller type pump, developed by the De Laval Steam Turbine Co., Trenton, N. J., is built for both horizontal and vertical installation and is available for all capacities and for heads up to about 40 ft. This pump is suitable for direct connection to standard speed electric motors or steam turbines, or if conditions require it, a speed reducing gear may be used.

The pump case can be removed to render the propeller and other interior parts accessible. At the coupling end, the shaft is supported by a grease-lubricated ball-bearing with a separate ball thrust bearing in the same housing. At the propeller end, the shaft is supported by a bearing of the sleeve type. The shaft is protected from wear by a removable protecting sleeve which extends through the stuffing box and provides a bearing surface for the packing.

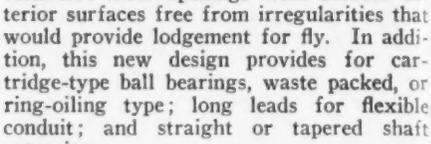
Combination Brush and Shear

A FULLY automatic combination brush and shear, which occupies only 50% of the space formerly needed for the two machines, has been developed recently by Hermas Machine Co., Hawthorne, N. J. The shear is so arranged that the cloth passes through in a vertical instead of a horizontal plane, thus permitting the two machines to be mounted on one set of frames, compactly, yet with plenty of space for cleaning and taking care of adjustments. A unique feature of this new machine is that in the event a certain class of cloth does not require brushing, it is only necessary to move a handle to disengage the brushes so the cloth will only be sheared. Other features are individual suction on each brush and instant adjustment for heavy or light brushing, or no brushing at all. Advantages cited for the combination brush and shear are: all hand trimming eliminated, inspectors' production increased, percentage of seconds reduced, clothroom expense reduced, and appearance of cloth improved.



Open-Type Textile Motor

A NEW Seal-Clad open-type textile motor is announced by Allis-Chalmers Mfg. Co., Milwaukee, Wis. Features of the motor cited by the manufacturer are as follows: Improvements in design are incorporated to permit free travel of lint in the air passages, which eliminates frequent cleaning required with the standard type of motor. Stator windings are covered at both ends, providing a smooth, hard surface to which lint will not adhere. The integrally cast rotor fans are so shaped as to eliminate pockets where fly could collect. Discharge openings for the cooling air are large and smooth, leaving no sharp edges. Motor housings have unrestricted inlet openings with smooth interior surfaces free from irregularities that would provide lodgement for fly. In addition, this new design provides for cartridge-type ball bearings, waste packed, or ring-oiling type; long leads for flexible conduit; and straight or tapered shaft extension.



Vari-Speed Motor-Pulley Countershaft Unit

THE vari-speed motor pulley countershaft unit, an adaptation of the Reeves vari-speed motor pulley, has been introduced by the Reeves Pulley Co., Columbus, Ind. The unit consists of two opposing cone-faced discs, one stationary and one sliding, and an adjustable power compression spring, all mounted on the shaft of a standard electric motor. This assembly is mounted on a special sliding motor base. The speed may be adjusted by moving the motor and disc assembly toward or away from the driven pulley. This is accomplished by means of the adjusting handwheel. This unit, built in seven sizes, is available up to 7½ hp.

General Equipment

ALSO of interest to the textile field are the following improvements in general industrial equipment:

V-Groove Pulleys. Dayton Rubber Mfg. Co., Dayton, Ohio, has announced a new line of "Day-Steel" single and multiple V-groove pulleys for use with Dayton cogbelts for ratings of 7½ hp. and below.

Blue-Print Process. The Kyano process a new and simplified method of developing blue prints and blue-line prints, has been announced by C. F. Pease Co., Chicago.

Boiler Feed-Water Control. A "three-element" feed-water control system has been developed by the Bailey Meter Co., Cleveland. The three elements from which this control is operated are: steam flow from boiler, feed-water flow to boiler, and water level in boiler drum.

Industrial Switches. Square D Co., Detroit, offers an improved line of Type C industrial switches, major changes of which are larger boxes, positive quick make and quick break operating mechanism, and the addition of positive pressure fuse clips. Also announced is a new line of general service industrial safety switches in capacities from 30 to 400 amperes, 250 and 575 volts, fused or unfused.

GUIDE TO GREENVILLE SHOW

(Continued from page 94)

Steger, H. S. Blizzard and R. B. Olney.

J. E. Sirrine & Co., Greenville, S. C. Booth 230. Industrial architects and engineers. Represented by J. E. Sirrine, John A. McPherson, A. S. Bedell, H. L. Hagerman, S. R. Riley, R. H. Chapman, George Wrigley, H. C. Swannell, A. D. Asbury, Jr., George P. McClenaghan, J. Fletcher Lowe and C. R. MacDonald.

S K F Industries, Inc., New York. Booths 467, 468. Roller-bearing spindles and complete range of ball and roller bearings applicable to textile equipment. Represented by R. H. DeMott, F. Zweifel, K. W. Mecklenburg, H. A. Fonda, N. Miller, M. H. Courtenay.

Smith Drum & Co., Philadelphia, Pa. Booth 131-A. New type Smith Drum skein dyeing machine. Rep.: W. C. Dodson, sales manager; R. D. Howerton, southern representative; C. A. Sauerbrey, salesman.

Southern Shuttles, Inc., Greenville, S. C. Booth 435. Power-loom shuttles for hand threading looms with cotton, wool, silk, or rayon filling; for automatic bobbin-changing looms for cotton, wool and silk filling; and large type shuttles for duck, carpet, rug, and jute looms. Represented by Louis P. Batson, president and general manager; H. E. Littlejohn, treasurer; G. W. Cain, secretary; W. O. Jones and W. N. King.

Southern Textile Bulletin, Charlotte, N. C. Booth 204. Textile publishers.

Standard Oil Co. of New Jersey, Columbia, S. C. Booth 480. Display of products marketed by Standard Oil Co. of N. J., with which the public is not generally acquanited. Featuring Essolube, a new motor oil. Represented by D. H. Collins, branch manager; A. M. Graves, assistant branch manager; E. P. Hayes, F. B. Miller, managers of lubrication department; J. P. Lear, H. H. Arrington, lubrication salesmen; A. E. Willis, lubrication engineer; W. H. FitzSimons, Jr., manager, Greenville district; A. J. H. Rumpel, branch advertising representative; A. F. Henderson, lubrication engineer.

Steel Heddle Mfg. Co., Philadelphia, Pa. Booth 123. Flat steel heddles, frames, reeds, and drop wires. Featuring a new electric harness warp stop motion operated exclusively by the heddle mechanism; an automatic safety harness control; a novel warp let off mechanism; new jacquard doup; and new hook reed for rayon warps. Represented by John J. Kaufman, president; Rob't. J. Freitag, treasurer; and members of southern factory and office staffs.

Stein, Hall & Co., Inc., Charlotte, N. C. Booth 209. Starch and starch products for sizing, finishing and printing cotton, rayon and acetate yarns and fabrics. Rep.: Ira L. Griffin, manager; J. F. Crawford, T. C. Davis, Harold Mahon, W. N. Kline, Jr., Dr. C. J. Peterson.

Swann Chemical Co., Birmingham, Ala. Booth 233-E. Heavy and fine chemicals. Rep.: Edw. L. Sayers, vice-president; O. L. Williams, G. A. Howland, J. F. Yeates, Jr., B. F. Morgan.

C. J. Tagliabue Mfg. Co., Brooklyn, N. Y. Booth 427-428. Instruments for indicating, recording, and controlling temperatures, pressure, etc. Featuring complete line of instruments for slasher and finishing rooms. Represented by E. G. Cullings, southern representative and M. V. Wichum, chief engineer.

W. O. & M. W. Talcott, Inc., Providence, R. I. Booth 412. Talcott safety belt fasteners; also special conveyor belt fasteners, and fasteners for leather, rubber and woven transmission belting. Rep.: M. W. Talcott, vice-president.

Taylor Instrument Cos., Rochester, N. Y. Booths 446-447. Indicating and recording thermometers, temperature regulators, and complete systems of control. To feature Taylor warp conditioning equipment and service; also the new design rectangular-case Taylor recording thermometer. Rep.: T. C. Hazard, manager textile division; H. M. Barker, manager Atlanta office.

Textile Week in Greenville

Oct. 17-22: Southern Textile Exposition.

Oct. 17: Cotton-Textile Institute Style show.

Oct. 19: Textile Section, A.S.M.E., meeting; Prosperity Ball.

Oct. 21: Southern Textile Association, fall convention.

The Textile Hall Corp. has announced committees for show week. The advisory committee, consisting of 13 mill managers and superintendents, is headed by M. O. Alexander of Woodside Cotton Mills Co. Chairman of other committees follow: Harry D. Learnard (A.S.M.E. meeting); J. H. Spencer (Southern Textile Association meeting); George Wrigley (finance); John R. White (hotel accommodations); Harold C. Smith (dances), and P. F. Sackett (automobiles).

Terrell Machine Co., Charlotte, N. C. Booth 101. Utsman bobbin stripper, Type K bobbin stripper, Termaco roving bobbin cleaner; Waltham pick counters, and Economy baling equipment. Rep.: E. A. Terrell, A. C. Kimbril, W. S. Terrell.

Texas Co., Atlanta, Ga. Booths 452-455. Texaco textile lubricants and cotton conditioning compounds, with demonstration of the products in service. Rep.: F. R. Splawn, superintendent of lubricating sales, Houston, Tex.; J. B. Walker, lubricating engineer, Greenwood, S. C.; W. L. Heinz, chief lubrication engineer, Atlanta.

Textile American, Boston, Mass. Booth 483. Textile publishers.

Textile-Finishing Machinery Co., Providence, R. I. Booth 114. Copper-jacketed color kettle; electric automatic cloth guider and feeder unit; latest type tenter clips, and illustrations of latest type automatic tenter. Represented by H. G. Mayer, southern agent; James Cook, Wallace Taylor, Albert H. Goff.

Textile World, New York. Booths 223-224. Textile periodicals, directories, catalogs, technical books, etc. Represented by members of editorial and business staffs.

U. S. Dept. of Agriculture, Washington, D. C. Balcony. Exhibit dealing with four services relating to cotton.

U. S. Ring Traveler Co., Providence, R. I. Booth 433-434-A. Universal Standard ring travelers of improved design; Bowen bevel-edged traveler, vertical offset traveler, Hi-Speed flange ring, Hi-Speed vertical concaved ring, and ring shield. Represented by W. P. Vaughan, Oliver B. Land, Amos M. Bowen, treasurer.

Universal Winding Co., Boston, Mass. Booth 232. Winding machines of various types. Featuring No. 40 Reece roll cone winder for winding cones for knitting; No. 45 machine for cord and twine winding; No. 150 cone winder for silk and rayon. Represented by I. E. Wynne, Frederick Jackson, J. W. Stribling, R. M. Maulden, F. H. Bishop, Robt. Leeson.

Veeder-Root, Inc., Hartford, Conn. Booth 108. Automatic counting devices including hank counters, yardage counters, magnetic counters, predetermining counters, speed counters, grader counters, hosiery counters; tallies, checkometers. Featuring a new line of pick counters with resettable feature and moisture-resisting durable finish. Represented by Arthur E. Kallinch, field sales manager; Graham H. Anthony, president; and John H. Chaplin, sales manager.

Viscose Co., New York. Booth 484. Display of rayon dress goods, household furnishings, draperies, upholstery, etc., made from Viscose Company yarns. Represented by W. C. Appleton, W. B. Olmsted, H. W. Rose, H. L. Dalton, J. J. Chamberlain and Dexter Lewis.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Booth 465. Lint free loom motor, motor starters, new electrical measuring instruments. Represented by G. D. Bowne, H. W. Redding, E. S. Lanners, M. A. Land, C. L. Speake, John Gelzer, Jr., J. W. Brooks.

Whitin Machine Works, Whitinsville, Mass. Booth 233-A. To exhibit Whitin 36-spindle model F Casablancas-equipped spinning frame with new head end, 4 in. gauge, spinning 21s yarn, one side of 18 spindles equipped with the new Whitin Century 4JK bolster and case and the other side probably with SKF roller bearing spindles, traversing thread board. Also special exhibit of Whitin Crys-steel rings and an illuminated showcase exhibit of all kinds of accessories. Rep.: E. Kent Swift, treasurer and general manager; S. R. Mason, secretary; Wm. H. Porcher, R. I. Dalton and I. D. Wingo, agents; E. D. Hague, northern sales manager; Clifford B. Terry, W. D. Lyerly, W. J. Johnson, M. J. Bentley, W. O. Aldrich, J. L. Truslow, James F. Marshall.

Whitinsville Spinning Ring Co., Whitinsville, Mass. Booth 203. Various types and sizes of rings. Featuring new self-lubricating rings. Represented by Webb Durham, southern agent; William P. DuTemple, sales manager.

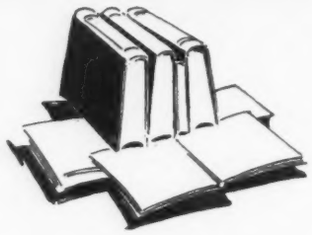
NEW PUBLICATIONS

A Trade Policy for Cotton Spinners; By Frank Greenhalgh; John Heywood, Ltd., Manchester and London, England; one shilling sixpence.

A comprehensive detailed operating policy for cotton spinners was presented by Mr. Greenhalgh last January at a meeting of the general committee of the British Federation of Master Cotton Spinners' Associations, and this address now is available in booklet form. The printed text is considerably more extensive than the address as delivered, and covers all the major operating problems of the spinner.

Seasonal Variations in Employment; A Statistical Study Based on Census Data; By J. Parker Bursk; University of Pennsylvania Press, Philadelphia; $2.50.

Mr. Bursk's volume, while a thoughtful and stimulating addition to the growing library on unemployment, is very broad in its scope which necessarily limits his consideration of the textile industry to part of one chapter. In chapter three he groups textiles, leather and rubber together and considers each division in that sequence. There are several charts of particular interest and value to students of employment in the textile industry, especially the first which shows seasonal variations in cotton



goods, silk goods, dyeing and finishing, and the manufacture of cordage and twine.

Of particular significance is the comment in his concluding summary that "the textile and allied products division shows the smallest average seasonal range with the individual percentage ranges closely grouped between 4 and 7%, except for the industries manufacturing bags, buttons and cordage and twine."

Census of Distribution, Products of Manufacturing Industries, 1929; Washington, D. C.; United States Department of Commerce, Bureau of the Census; 15c.

Textiles and related products rank high in importance in this compilation of manufactures, for use in market analysis. The report supplies manufacturers selling to industry with statistics enabling them to estimate the actual and potential consumption by other manufacturers of the products they sell.

Business Literature

Water Purification. The Permutit Co., New York. Describes advantages secured through water treatment, and explains recent developments in Zeolite water softening.

Electric Hoist. Philadelphia Gear Works, Philadelphia. Describes improved features of new, light-weight Philadelphia electric hoist and gives tables showing clearance limensions for plain trolley hoists and standard capacities and ratings.

Corrosion. The International Nickel Co., New York. Bulletin tells how Monel Metal solves corrosion and related problems in dyeing, stripping and bleaching and gives findings of recent survey in textile field.

Motors. General Electric Co., Schenectady, N. Y. Uses and advantages of general-purpose induction motor described in illustrated folder.

Packaging. National Metal Edge Box Co., Philadelphia. Metal edge, paper boxes described and illustrated in attractive booklet. Full details on scope of service, strength, economy, etc.

Conveying. Redler Conveyor Co., New York, N. Y. Illustrated booklet on principles and installations of Redler "en masse" conveyors which handle a wide variety of materials including coal and ashes in any direction with feed or discharge located almost anywhere desired.

BUSINESS NEWS

Louis Hirsch Textile Machines, Inc., have recently acquired the Helios line of sinkers, dividers, knocking-over bits and other full-fashioned hosiery machine parts made in Saxony and will carry a stock of them in New York. The German factory has lately installed apparatus to give most accurate precision control of its product.

B. E. Geer & Co., Inc., Greenville, S. C., has been organized to deal in stocks, bonds, real estate and industrial sites. This company, of which B. E. Geer, formerly president and treasurer of the Judson Mills, is the organizer and head, will specialize in the location for industrial plant sites in the Piedmont section.

National Oil Products Co., Harrison, N. J., has appointed Edson K. Rice as sales manager of its textile oils department in the mid-western territory, with offices in Chicago. Mr. Rice has been with the John Campbell & Co., New York, for the last nine years. Ralph Weschler, treasurer of National Oil Products Co. is now in Europe. He will visit his company's laboratory at Heidelberg, Germany, where research in textile oils is being carried on.

Gamon Meter Co. and the Meter Division of Worthington Pump & Machinery Corp. have made an arrangement for joint use of engineering, sales and service facilities. Worthington's main plant is at Harrison, N. J., and Gamon is located at Newark, N. J. The companies' lines supplement each other in the field of liquid measuring meters.

Jacques Wolf & Co. has added another unit to extend manufacturing facilities by the purchase of additional property and building at Carlstadt, N. J. At a recent meeting of the Board of Directors of that company, Gerald J. Desmond, sales manager, was elected a director and secretary of the company. Mr. Desmond will continue his personal contact with the trade.

Julius F. Stone, Sr., prominent industrial and financial executive, was elected president of the Case Crane & Kilbourne Jacobs Co., Columbus, Ohio, manufacturers of the well-known "K & J" line, at recent annual meeting. He is also president of the Columbus-McKinnon Chain Corp. and the Chisholm-Moore Hoist Corp., both of Tonawanda, N. Y. H. C. Hoeflich has been elected vice-president and general manager of Case Crane and Kilbourne Jacobs Co.

Glyco Products Co., Inc., has appointed Harold W. Feuchter, 332 Bedford Ave., Buffalo, N. Y., as sales representative for the Buffalo district. Mr. Feuchter was formerly research chemist for the National Aniline & Chemical Co.

George T. Metcalf has severed his connection with Franklin Process Co. of Providence, as advertising and sales promotion manager, to go into the advertising business for himself. He will continue to handle Franklin Process advertising as advertising agent.

S. L. Hayes, formerly superintendent of the Hartsville (S. C.) Print and Dye Works, has been appointed manager of the Greenville (S. C.) office of the Ciba Co., effective Sept. 15, succeeding J. C. Cosby who recently resigned. S. I. Parker, who has been representing the company in Tennessee, has been transferred to the Georgia territory, but will make his headquarters at the Greenville office.

S K F Industries, Inc., New York, have consolidated the manufacturing activities of the Skayef Ball Bearing Co. of Hartford with the Hess-Bright Mfg. Co., at Philadelphia, both subsidiary companies. This action will concentrate manufacturing and research activities. The complete line manufactured at Hartford will be continued at Philadelphia.

William S. Culver, concluding 47 years in the employ of the General Electric Co. and its predecessors, and lately district engineer of the East Central district of the company, with headquarters at Cleveland, retired on Sept. 30. C. W. Fick, assistant district engineer, has become district engineer to succeed Mr. Culver.

A. M. Castle & Co. has been appointed the distributor of the Babcock & Wilcox Tube Co.'s products in the Chicago and Pacific Coast territories.

Sir James Farmer Norton Co., Ltd., Manchester, England, has appointed H. Nowell, Montreal, Que., as Canadian agent for the Norton line of textile machinery.

G. E. Tenney has been appointed sales manager of the Chicago District for the Lincoln Electric Co., Cleveland, Ohio. The Chicago office is at 1455 West 37th St.

Foote Brothers Gear & Machine Co., Chicago, announce the appointment of C. H. Taylor, Johnston Building, Charlotte, N. C., as IXL representative in South Carolina and the western part of N. C.

Alonzo B. Reed, textile engineer, is now located at 89 Broad St., Boston, Mass.

INDUSTRY-WIDE EVENTS

Preliminary Report on Economic Research

The committee on economic research of the U. S. Institute for Textile Research has prepared a preliminary report recommending 16 subjects as a program for economic research. The list is offered as suggestive, rather than all-inclusive.

Before undertaking to find ways and means for promoting research on these subjects, the committee is taking steps to obtain opinions from members, and others interested, as to which of the topics are most important; as to additional subjects to be considered; and as to organizations or individuals who have done, or are doing, research along these lines.

The committee is composed of: H. V. R. Scheel, chairman; Fessenden S. Blanchard, Paul T. Cherington, Evans Clark, Stanley B. Hunt, E. Kent Mitchel and A. W. Zelomek.

The sixteen subjects follow:

(1) Balancing and Stabilization of Production and Sales; (2) Selective Distribution; (3) Advertising and Branding of Textiles; (4) Pricing and Price Policies; (5) Trends in Organization of Marketing by Mills; (6) Vertical Consolidations and Results; (7) Horizontal Combination and Results; (8) Channels of Distribution; (9) Style Policies and Practices; (10) Color Principles and Practices; (11) Cost Methods in Production and Marketing; (12) Studies of New Uses and New Markets for Different Kinds of Textile Products; (13) What Are the Trends in Textile Fiber Competition?; (14) Inventory of Equipment and Production Potentialities for Each Branch of the Textile Industry; (15) What Are the Scientific Bases for Plant or product Expansion?; (16) Relation of Textiles to General Business.

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D-13 Meeting Postponed Until Oct. 27-28

The fall meeting of Committee D-13, American Society for Testing Materials, originally scheduled for Akron, Ohio, Oct. 20 and 21, has been postponed until Oct. 27 and 28. The place has not been definitely fixed; the secretary is securing an expression from members as to preference. Akron, Boston and Providence are mentioned in the questionnaire.

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Urges Retailers to Buy in Slack Season

Buying of goods in the slack season for manufacturing, as a means of enabling mills to provide steady employment, was urged upon retailers at the Retail Distribution Conference, in Boston, Sept. 20, by Robert Amory, treasurer of the Nashua Mfg. Co.

Mr. Amory said that he would like to see some of the retail leaders form a small committee with some of the larger mills and converters with the object of making an intelligent and careful study of the actual cost and saving due to volume merchandising. This, he held, would give the retailer a clear idea of what discount he was entitled to and also what really constituted successful and economical grouping of orders.

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A.S.T.M. Annual Meeting

The 1933 annual meeting of the American Society for Testing Materials will be held at the Stevens Hotel, Chicago, June 26 to 30, during the Century of Progress Exposition. The meeting of Committee D-13 on Textile Materials will be held of course during that week, the exact day to be announced later.

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Textile Machinery Output

With the release of the Census of Manufactures statistics on the production of textile machinery and accessories in 1931, it is possible to check TEXTILE WORLD's estimate of sales for that year as published in the Annual Review and Forecast Number in February. On the basis of confidential returns to a questionnaire sent to representative equipment manufacturers, we placed the 1931 sales, in dollar volume, at 15% below those of 1930, which in turn were about 33⅓% below 1929. In other words the 1931 sales were approximately 57% of 1929. The Census of Manufactures tabulation gives the 1931 production at 51% of 1929.

The total for 1931, as reported by the Bureau of the Census, was $57,310,871 against $112,851,338 in 1929. The 1931 figure included fiber-to-fabric machinery totaling $8,044,852; fabric machinery totaling $15,515,588; machinery for bleaching, dyeing, finishing, etc., totaling $5,091,682; other textile machinery totaling $3,328,492; and spindles, extra parts, attachments, and accessories totaling $25,330,257.

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Textile Courses Scheduled

Textile Evening High School, New York, announces the opening of a new course in textile merchandising to be given Tuesday and Thurday evenings. On Monday and Wednesday evenings will be conducted a course in the analysis and manufacture of silk and rayon crepes and other piece-dyed fabrics. Both courses will be conducted by Joseph S. Kaskel. They started Sept. 27 and Sept. 26, respectively.

Commencing Oct. 3, and continuing each Monday for 15 sessions Columbia University, New York, started an evening course of lectures on silks, rayons, ribbons, velvets, etc. The lecturer is James Chittick.

Mr. Chittick also resumed, commencing Oct. 11, his private evening textile course covering the entire field. The instruction is given each Tuesday evening at Mr. Chittick's offices in New York and will comprise 16 lectures.

College of Business Administration, Boston University, is offering again this year a course in wool and wool textiles, covering 15 weeks. The class meets Friday evenings. The course started Sept. 23. Clement Wood is the instructor.

A special course in textiles is being offered in the evening session of the School of Household Science and Arts of Pratt Institute, Brooklyn, N. Y., which opened Sept. 26.

Rudolph J. Muller, head of textile department, Paterson Vocation School, started a course of instruction in textile engineering and silk at the Packard School, New York, on Sept. 29. Lectures are given Thursday evenings.

J. L. Tucker, formerly with Saco-Lowell Shops, is conducting a complete evening course on cotton-yarn manufacturing at Textile High School, New York, covering both theory and practice. Registration is now in progress.

Charles H. Eames, president of Lowell Textile Institute, Lowell, Mass., announces an enrollment of 160 students at the institute, only one less than last year, including a freshman class of 49. For some years there has been a registration trend in favor of the four-year degree courses, and this year only one freshman registered for a three-year diploma course.

Textile Calendar

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

Cotton-Textile Institute, annual meeting, Biltmore Hotel, New York, Oct. 19, 1932.

American Society of Mechanical Engineers, Textile Division, Greenville, S. C., Oct. 19, 1932.

Committee D-13, A.S.T.M., Fall meeting, Oct. 27 and 28, 1932. (Place not decided).

Southern Textile Association, semi-annual meeting, Greenville, S. C., Oct. 21, 1932.

National Association of Hosiery & Underwear Manufacturers, meeting of executives, Waldorf Astoria Hotel, New York, Oct. 26 and 27, 1932.

United States Institute for Textile Research, annual meeting, New York, Nov. 3, 1932.

Cotton Manufacturers Assn. of N. C., annual meeting, Carolina Hotel, Pinehurst, N. C., Nov. 17 and 18, 1932.

Tenth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Dec. 5 to 10, 1932.

American Society of Mechanical Engineers, annual meeting, New York, week Dec. 5 to 10, 1932.

Silk Assn. of America, annual dinner, New York, January, 1933.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Apr. 24 to 28, 1933 (tentative).

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

TEXTILE WORLD'S

Cotton Digest

CRITICS of the cotton industry are gradually losing one of the planks of their platform. The charge that manufacturers display a complacent negativism concerning the possibilities of new products is, if not obsolete, at least obsolescent.

Witness the "new uses" achievements surveyed in the pictorial insert in this issue. No matter how large or how small may be the total additional yardage realized, the search for broader outlets represents an aggressive and laudable effort.

Backing up this coordinated endeavor are the enterprising excursions of many individual mills. Greater emphasis upon the development of goods with new style appeal has been productive of results. Cotton manufacturers have been developing new twists and weaves, including many mixed fiber combinations, in novelty yarns and fabrics.

Necessity is the mother of twins: invention and action.

Cotton-Textile Institute Annual Meeting Oct. 19

The annual meeting of the Cotton-Textile Institute, to be held at the Biltmore Hotel, New York, Oct. 19, will comprise an afternoon session and a banquet, instead of a morning session and luncheon as formerly. A feature will be an exhibit of new uses for cotton.

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Wage Increases in South

Newberry (S. C.) Cotton Mill has resumed a five-day week schedule and has given a 10% increase in pay affecting 1,200 workers.

A 10% increase in wages, effective Sept. 12, affecting 296 men working full-time has been announced by officials of the Spofford Mills, Inc., Wilmington, N. C.

Halifax Cotton Mills, South Boston, Va., put into effect a 10% wage increase beginning Sept. 19.

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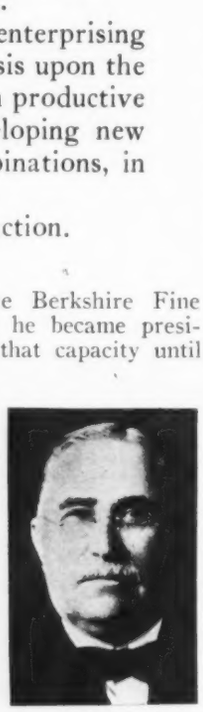
G. T. Thompson, of Berkshire Group, Dies

Gilbert T. Thompson, chairman of the board of directors of the Berkshire Fine Spinning Associates, died in his home in Adams, Mass., Sept. 13 after a long illness. He was born in Washington, D. C., in 1879. He served as New Bedford manager of the E. A. Shaw Co., cotton brokers, and as agent for the Warren Mfg. Co. in Warren, R. I. He went to Adams in 1919 as agent and treasurer of the Berkshire Cotton Mfg. Co. and later became treasurer of Greylock Mills. When these concerns were merged in the Berkshire Fine Spinning Associates he became president and served in that capacity until Sept. 1, 1931.

G. T. Thompson



J. I. Pritchett

James I. Pritchett Dies

James I. Pritchett, Sr., president and treasurer, Riverside & Dan River Cotton Mills, Danville, Va., died Sept. 25, as the result of injuries sustained in an automobile accident. He was 75 years of age and had lived in Danville since 1873 when he moved there from Halifax County, Va. His first business venture was in flour milling. For many years he was president of the First National Bank of Danville. He was elected head of the large cotton mill organization following the death of H. R. Fitzgerald. He was president of Piedmont Mills, Lynchburg, Va., and a director of the Industrial Cotton Mills, Rockhill, S. C.

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Rakestraw Again Heads Cotton Yarn Men

Fred A. Rakestraw, Hyde-Rakestraw Co., Philadelphia, was reelected president of the Cotton Yarn Merchants Association at the annual meeting held in Philadelphia, Sept. 27. Conditions in the trade, plans for greater stabilization of volume and prices, and the credit situation were among the topics discussed in detail at the meeting. E. F. Sherman, John F. Street & Co., Providence, was reelected vice-president, and Frank E. Slack secretary-treasurer.

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Gaston County Meeting

D. P. Stowe, secretary and treasurer, Perfection Spinning Co., Belmont, N. C., was elected president of the Gaston County Textile Manufacturers Association, at the annual meeting of that organization, in Gastonia, N. C., Sept. 26. He succeeds Fred L. Smyre, of Gastonia.

C. D. Welch, vice-president and agent, Cramerton (N. C.) Mills, Inc., and Arthur K. Winget, president, Efird Mfg. Co., Albemarle, N. C., were elected first and second vice-presidents, respectively. New directors were elected, as follows: W. L. Balthis, Lowell, N. C.; Charles A. Cannon, Kannapolis, N. C.; A. E. Davis, Salisbury, N. C.; J. A. Groves, of Albemarle; and George W. Stowe, of Belmont.

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Nashua Acquires Anchor

Nashua Mfg. Co., Nashua, N. H., will acquire the "Dwight Anchor" sheeting trademark and the Somersworth, N. H., plant of the Dwight Mfg. Co. The southern mill of Dwight at Alabama City, Ala., will not be affected. The Somersworth plant is listed as having 77,000 spindles, 761 broad and 868 narrow looms.

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Two Records Broken

August activity in cotton goods broke two records, according to Association of Cotton Textile Merchants of N. Y. Stocks on Aug. 31 were 209,407,000 yd., a decline of 25.5%; previous low record was 239,654,000 yd. on Feb. 29, 1932. Sales for month totaled the record figure of 510,531,000 yd., or 282.4% of production which was 170,781,000 yd. Billings were 252,623,000 yd. or 139.7% of production. Unfilled orders increased 113.1% to 485,860,000 yd.; this figure has not been equalled since March, 1929. . . . . Bureau of Census report for August shows spindle operation at 72.4% capacity on single-shift basis, against 51.5% for July, 57.6 for June, 70.5 for April, 89.9 for March and 81.6 for August, 1931.

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Jarvis to Sell Suncook

Suncook (N. H.) Mills will hereafter sell its products through D. W. Jarvis, New York. Percival S. Howe, Jr., lately in charge of fine goods for Wellington, Sears & Co., will join the Jarvis organization in charge of the Suncook account.

South Is Buying More Machinery

An unusual number of machinery purchases are reported from the South this month. Detailed reports are to be found under "Cotton Mill News" on this page.

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Hunter Manufacturing Reports Condition

A detailed report of condition as of June 30 was given to the stockholders of the Hunter Mfg. & Commission Co. by Donald Comer, president, at the annual meeting held in Greensboro, N. C., Sept. 15. This was in accordance with the statement made at a meeting last June, shortly after important mill creditors had taken over the management.

Analysis of the balance sheet gives the impression that assets have been written down to what might be called a fair liquidating value. Thus, mills are valued at $5 per spindle, a reserve of $7,191,504 set up against receivables of $10,081,737 from mills and individuals other than customers, and a reserve of $1,560,407 set up against investment in mill and other securities of $1,655,727. Capital stock has been written down from $100 par to $1 par. Total current assets—under which are listed cash, due from customers, inventory and miscellaneous receivables—are given as $2,121,358 and current liabilities as $5,319,619. Deficit is placed at $3,397,518 as against $735,951 on June 30, 1931. Profit and loss account shows net loss for the year of $529,994 after extraordinary charges of $200,466. A small profit for July and August was reported by Mr. Comer.

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Open Chattanooga Office

Waterman, Currier & Co., Boston, Mass., cotton yarns, have opened district offices in the James Building, at Chattanooga, Tenn. W. W. Crews, formerly attached to the Charlotte (N. C.) offices of the company, is in charge of the Chattanooga territory. This firm was recently appointed southern selling agents for the Norwood (N. C.) Mfg. Co., manufacturers of 14s to 40s combed weaving and knitting yarns.

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Cotton Price Comparisons

The following are prices of key items in the cotton industry:

	Oct. 1	Sept. 1	Sept. 1 1931	Sept. 1 1930
Spot Cotton, N. Y.	7.05	8.30	5.80	10.35
Ditto, high previous month	9.00	9.20	7.25	11.65
Ditto, low previous month	6.80	5.90	5.95	10.35
Peeler Comber	7c	7.8c	5¼c	9¼c
White Spooler Waste	4¼c	5c	5c	8½c
10s frame spun yarn	15½c	18½c	14½c	20½c
10s/2 carded skeins	15½c	18c	14½c	21c
20s/2 carded peeler warps	18½c	20½c	16½c	22½c
60s/2 combed peeler warps	47c	46c	42½c	56½c
60s 2 mercerized cones	60c	55c	63c	73c
8?s in., 3-yd. drill	5¾c	6c	5¼c	7¼c
3½ in. 64x60s	4c	4¼c	4¼c	5¼c
36in. 4-yd. 56x60s	4½c	5c	4¼c	6¼c
Denim, 2. 20s	10½c	10¼c	9¼c	12½c

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Cotton Mill News

AMERICAN NET & TWINE Co's. subsidiary plant at Blue Mountain near Anniston, Ala., will build two additions to its plant to cost $50,000, drying and polishing house, 80 x 107 ft., and a dye house addition, 50 x 75 ft.

HELEN MILLS OF ALABAMA, Huntsville, Ala., idle for several months, were placed in receivership by court order early in September.

PEPPERELL MFG. Co., Biddeford, Me., reported a net loss, after charges, of $1,999,558 for the fiscal year ended June 30, 1932, as compared with a loss of $582,441 in the previous fiscal year.

WM. E. HOOPER & SONS Co., Baltimore, Md., recently purchased 13,000 spindles of long draft spinning from the Saco-Lowell Shops.

PEPPERELL MFG. Co. installed 200 Draper automatic looms in plant B, Fall River, Mass., early in September, replacing 180 automatics which were removed to plant A where experimental work on silk and rayon is done.

NEWNAN (Ga.) COTTON MILLS is installing continuous card stripper machinery.

TUPELO (Miss.) COTTON MILLS has purchased 4 speeders and two pickers from a plant at Pine Bluff, Ark., and they are now being installed.

E. M. HOLT PLAID MILLS, INC., Burlington, N. C., have approved an expansion and improvement program at plant, including installation of 104 C. & K. looms and auxiliary equipment. Throwing machinery has been installed and product will be rayon, silk goods.

ERWIN COTTON MILLS Co., Plant No. 6, formerly known as the Pearl Cotton Mills, East Durham, N. C., recently replaced a portion of its old spinning equipment with 6,624 spindles of new Whitin long draft.

MOORESVILLE (N. C.) COTTON MILLS have installed 15 additional cards in their No. 2 plant.

ARISTA MILLS Co., Winston-Salem, N. C., is having the spinning machinery overhauled by the Guillet system.

CATAWBA COTTON MILLS, Newton, N. C., have been under repair and when new machinery is installed by J. L. Schrum, manager, it will start up.

ABERFOYLE MFG. Co., Chester, Pa., has taken over the former Sprucolite Co. plant in Guleph, Ont., one of the city's largest plants, and will manufacture mercerized cotton yarns. The new Canadian branch will employ 125 hands at the start.

APPLETON Co., Anderson, S. C., is replacing two of its boilers. Other recent repairs were made on the plant, including a new roof, etc., which represented an expenditure of $100,000.

COLUMBIA (S. C.) MILLS have purchased 11 new single process pickers from the Saco-Lowell Shops.

JOANNA COTTON MILLS, Goldville, S. C., have completed the construction of a one-story cotton warehouse, 150 x 200 ft., with capacity for 16,000 bales.

GRENDEL MILLS, Greenwood, S. C., have purchased 30,000 spindles of Saco-Lowell long draft spinning for replacement of obsolete equipment.

BRANDON CORP., Greenville, S. C., has completed the installation of 24,000 spindles of new Saco-Lowell long draft spinning.

WATTS MILLS, Laurens, S. C., has awarded contract to the Fiske-Carter Construction Co., Greenville, S. C., for installing a new roof on their mill.

STANDARD - COOSA - THATCHER Co., Chattanooga, Tenn., recently announced that it had purchased $100,000 worth of new spinning and finishing machinery which would be installed within the next few weeks. This entire purchase of equipment was for replacement.

SHELBYILLE (Tenn.) MILLS, INC., with equipment including 23,032 spindles and 594 looms, was purchased by the Hunter Mfg. & Commission Co., at public auction, Sept. 10, for approximately $249,000, subject to confirmation by the referee in bankruptcy.

J. W. SANDERS MILL No. 2, Magnolia, Miss., formerly MAGNOLIA MILLS, idle for three years, has been put into operation.

TEXTILE WORLD'S

Wool Digest

HOW about Wool Week? . . . This question comes at us quite frequently nowadays, both by telephone and mail. The reason, of course, is that the anniversary of this particular week is approaching, and inquirers are anxious to know if there is to be a birthday party.

Our interest in the subject goes beyond Wool Week itself. In fact, our question would be: How about the wool industry?

Last spring, a "wool industry advisory board" was set up, and prospects of a concerted move toward various types of constructive activities seemed bright. Naturally, the summer months do not germinate such activities particularly well. It is our understanding, however, that work has been going on in committees. Its extension to the rank and file of the industry is what we are hoping for now.

There are *still* some problems to be solved in the wool industry. There is *still* an opportunity for promotional activities of the right type. We hope the fall and winter will not slip by without some progress being made.

Tropicals Seem Cheap

The opening of tropical worsteds around the middle of September disclosed a number of lines which were cheaper than expected. Doubtless raw material bought before the advance figured in the calculation. An 8-8½ oz. fabric, single filled, is quoted at 90c.; 9-9½ oz., single filled, 95c.; 9 oz. two ply, $1.00. In another quarter a three-ply cloth is offered at $1.00 and 10½ oz. fabric at $1.25. Competition as usual extracts the chance for better margins which are so necessary to put the industry on a sound basis.

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Women Take to Feathers

Admixture of ostrich feathers in construction of women's wear fabrics lends an interesting novelty effect which is taking well in some quarters. No sooner had there come some demand for these fabrics, than efforts were made to replace the ostrich content with feathers from the lowly goose. Goose feathers are much cheaper and users will not know the difference. Fabrics seen have feather fibers twisted in a stock-dyed yarn so that the feathers are white against a colored ground.

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"Here's Why!"

Promotion of a Christmas campaign following the "Wish It With Wool" of last year is being undertaken by Eavenson & Levering Co., Camden, N. J. The new plan involves a booklet entitled "Wish It With Wool—Here's Why!", which will tell consumers and retail salespeople what wool is and sound reasons why wool should be used for apparel, blankets, rugs, upholstery, etc. Probable development of National Wool Week promotion this fall will act as a further aid to sales of wool products during the late fall and holiday seasons.

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Botany Wool Tie Line Expands for New Season

Forman & Steiger, sales agents for the Botany wool ties and mufflers, opened lines for the fall-winter season on Sept. 14. The new ties are priced at $7.50 a dozen wholesale and will retail for $1 apiece. The mufflers are quoted at $15 per dozen and will retail at $2.95 in combination with a matching tie.

The offerings included eight woven lines and seventy-five prints. The woven designs consist chiefly of plaids and checks.

•

Rise in Wool Spurs Exchange Business

The rise in wool during August and the great volume of business transacted was reflected in activity of futures on the Wool Top Exchange. Officials of the exchange believe that more use is being made of its hedging facilities than ever before. Apparently the fact that losses of the first six months could have been lessened by hedging has impressed those incurring them to the point of bringing out many hedging orders lately on the purchase or sale of actual wool. The marketing period for the grower may be spread out by exchange transactions. Wool growers may follow fluctuation closely by finding out the differential between the standard top and their wool. For example Texas wools sell about 19c. less than futures and California wools about 24c. less, Ohio delaine, 12 to 13c. less.

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Macy Sells American Woolens

R. H. Macy & Co., New York retailers, have been featuring a sale of men's clothing at $16.95 with the statement that sufficient cloth for 5,000 suits was obtained by them from the American Woolen Co. at "an incredibly low price" according to their advertising. This is one of the few instances of co-operation between mill and retailer in the men's clothing field where the mill has been given a prominent place in the advertising.

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H. W. Shirreffs Becomes Worumbo Selling Agent

Harry W. Shirreffs has succeeded Frederick K. Nixon as selling agent of the Worumbo Co., New York. The last 22 of Mr. Shirreff's 32 years in the industry have been with Worumbo, styling and selling. He entered the industry with the Paton Mfg. Co., Sherbrooke, Que., on the manufacturing end. While with Worumbo he has worked with A. L. Gifford, the late J. B. Kirkaldy and F. K. Nixon, former selling agents.

The company operates mills at Lisbon Falls, Me., on a comprehensive line of fine woolens, camel's wool, cashmere, alpaca, and other fabrics. Mr. Nixon resigned last month to joint the Riverside & Dan River Cotton Mills as selling agent for their new lines of cotton warp worsteds.

•

"Rabbit Wool" Fabrics Ought to Include Some Rabbit Wool

A young woman associated with a New York textile office came to that office last week in an attractive dress which she had bought as made of "rabbit wool." Two of her co-workers went over the dress with a magnifying glass and found just one hair which was clearly rabbit in origin—the rest was sheep's wool. Imitation is sincere flattery and apparently consumer interest in rabbit wool materials is on the increase. The Federal Trade Commission and Better Business Bureaus which did a job in protecting the consumer from false claims on virgin wool, camel's hair, etc., will have to do the same thing all over again for rabbit wool. While they are about it distinction should be made between angora rabbit "wool" and the "hair" from other breeds of rabbit.

Forstmann Modernizes and Works 5-Day Week

Forstmann Woolen Co., Passaic, N. J., announced early in September that in compliance with the request of the administration to increase employment by shortening the working hours, it would inaugurate a five-day week on Sept. 12.

With the opening of the new seasonal line of woolens, the company will adopt throughout the mills the two-shift working time already in use in some departments to spread employment over the greatest possible number of workers.

A comprehensive modernization of Forstmann buildings and equipment is nearing completion.

This work has been done under the supervision of the engineering department of the company, according to Curt Forstmann, vice-president, and wherever possible, local labor has been used. Some of the plants whose employees have benefitted by the orders placed by the Forstmann Woolen Co. are Riley Stoker Corp., Lackawanna Steel Construction Corp., Stephens-Adamson Mfg. Co., Crompton & Knowles Loom Works, and General Electric Co.

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Overcoating Fabrics Off; Topcoats Gain

Growing consumer preference for topcoats and a proportionate decline in demand for overcoats has been a significant development in the men's clothing industry during the five-year period 1926-1931, according to a statement issued by the industrial research department of the Wharton School of Finance & Commerce, of the University of Pennsylvania. The statement interprets figures and other data gathered in a survey of this field from the point of view of the wool goods weaver.

The depression stimulated the proportion of yardage of men's wool fabrics cut into separate trousers, as well as the decrease in proportion cut into overcoats. Total yardage cut dropped nearly 30% between 1926 and 1931, the figures being equivalent of nearly 127,000,000 yd. of 56-inch wholly or partly wool cloth was cut into men's and youths' suits, separate trousers, overcoats and topcoats in 1926 against less than 90,000,000 yd. in 1931.

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Wool Consumption Rises

Wool consumption reported by Dept. of Commerce for August was 41,360,616 lb. grease equivalent, the largest figure in the calendar year so far and better than 2½ times the low month, May, when only 16,519,325 lb. were reported. It was 10,000,000 lb. below August, 1931.

Machinery activity showed improvement from July to August, the latter ranging from 56.9 to 84.8% on the more important machines against 37.9 to 64.9% in July.

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Price Trends in Wool

The following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	Oct. 1	Sept. 1	Oct. 1931	Oct. 1930
Fine and fine med. territory	$0.45	$0.41	$0.57½	$0.71
Ohio ⅜s	.23	.18½	.23½	.29½
Tops, fine, 64-66s	.68	.62½	.83½	.99
Average ⅜s	.56	.50	.64	.81½
High ¼	.52½	.44	.54	.71
Noils, fine	.35	.37	.37½	.56½
2-40s 60s wstd yarn	1.09	.91	1.20	1.42½
3192 serge	1.35	.....	1.68½	1.96½

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Lawrence Mills Get Tax Assessment Cut

A total of $7,760,000 reduction in assessed valuation was allowed to three large Lawrence, Mass., textile concerns by the local board of assessors this year. American Woolen Co. was granted decrease of $4,000,000. Pacific Mills a decrease of $2,360,000 and Arlington Mills a decrease of $1,400,000.

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Wool Mill News

LORRAINE MFG. CO., Pawcatuck, Conn., is transfering all machinery to the company's main plant at Central Falls, R. I., which is operating at capacity.

AMERICAN WOOLEN CO. has reopened its Foxcroft mill at Dover-Foxcroft, Me., after keeping it closed for five years. Two hundred persons will find employment. It is said that new looms have been installed for fancy goods manufacture.

GEO. E. KUNHARDT CORP., Lawrence, Mass., has sold all machinery, equipment and supplies to Textile Machinery & Supply Co. A large part will be resold to a smaller company which will soon start up under a new name.

ROHMER WOOL SCOURING CO., Newton, Mass., has added a one-story steel storage unit, 30x100 ft., built by Priggen Steel Bldgs. Co., Cambridge.

HILLCREST WOOLEN CO. has been formed to operate a women's dress goods mill at Wales, Mass., where an idle mill has been leased. Francis P. Creighton, Quinebaug, Conn., former superintendent of the Fabyan Woolen Co., Stafford Springs, Conn.; Frank A. Johnson and Edward Learned, Jr., both of Stafford Springs, head the concern. Thomas Swanson, will be boss of the finishing room.

TIFFANY WOOLEN MILLS, Webster, Mass., have started construction of a two-story brick addition to the plant, necessitated by increased orders.

SMITH MILLS, Worcester, Mass., has agreed to take over the Brick City Mill, Cherry Valley, formerly a part of the Channing Smith Textile Corp., and later owned by Israel Zelkind. A new company, Westwood Mills, is being organized and it is expected production of woolen cloth will soon start.

HIGHLAND PARK (Mich.) WOOLEN PLANT, formerly operated by Ford Motor Co., has sold its machinery to W. H. Hayward, president of woolen mills at Franklin, Mass., according to reports.

WASSOOKEAG WOOLEN CO., Keene, N. H., including real estate, machinery and equipment was sold on Sept. 20 by Samuel T. Freeman & Co., auctioneers. The mill operated 32 looms. Sale is subject to court confirmation. The sale brought $57,000 against $35,000 previously asked for the plant.

LEBANON (N. H.) WOOLEN MILLS CORP., lately organized, has purchased the Carter & Rogers mill and are operating day and night. Allen L. Goldfine, New York, is president, and Bernard Goldfine, Boston, is treasurer. Raymond S. Bartlett is vice-president and manager.

CONTINENTAL MILLS, Philadelphia, for many years a manufacturer of woolen knitted fabrics, is soon to manufacture woven woolens for men's wear, and a number of looms have been installed for that purpose.

PROVIDENCE (R. I.) COMBING MILLS, INC., have awarded contract to Mathewson & Rotelli, Cranston, R. I., for two-story addition to mill on Dike Street, 35x140 ft.

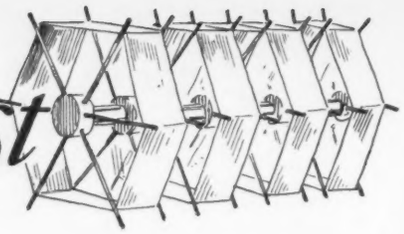
PARAGON WORSTED CO., Providence, R. I., has been granted a building permit for the construction of a two-story storage building. Brick will be used.

AMERICAN WOOLEN CO. plans liquidation by public auction on Oct. 6 of all its properties in Winooski and Burlington, Vermont, not directly connected with actual manufacturing operations.

A. OLIVER, owner of two idle woolen mills at Galashields, Scotland, has offered to dismantle one of his mills and establish it at Calgary in western Canada. If plans are successfully completed the mill will employ about 700 hands.

TEXTILE WORLD'S

Silk Digest



THE quality movement has gained another recruit. The Velvet Guild, whose formation was noted in last month's issue, has as its chief purpose "to create an emblem which will be assigned only to velvet fabrics deserving such distinction because of their high quality." As explained by H. H. Schell, president, the Guild was formed to "offset the 'price' emphasis." He added that "we want velvets to remain a high quality line, and we must have full consumer appreciation of quality to achieve that purpose."

Every move in that direction is a distinct step forward. Fortunately, retailers and consumers are today far more receptive to quality arguments than they were, or thought they were, six months ago. Capitalizing that new attitude is the opportunity, and the duty, of manufacturers.

Contract and Examination Method Approved by Silk Association

A revised contract covering raw goods transactions and a standard method for the examination of finished broadsilks were approved by the board of managers of the Silk Association of America at the quarterly meeting held Sept. 21.

The raw goods contract, which is simpler in form that the previous contract, provides that, where delivery dates cover several months, deliveries shall be in substantially equal quantities each month unless otherwise stated. The seller is allowed 15 days of grace on each delivery to the amount of 15% of the quantity due. The stipulation with regard to claims states that they shall be made within 30 days after the merchandise is converted, but in no event later than four months after date of shipment by seller. Provision is made that all controversies shall be settled under the arbitration rules of the association. The contract was revised by a committee of buyers and sellers and has received the approval of the broadsilk and converters' divisions.

Adoption of a standard method for the examination of finished broadsilks makes available a technique for the definition and classification of defects, for grading silks and an inspection guide. The plan takes into account the fact that the customer is chiefly interested in the loss in cutting which a defect necessitates, and that from the point of view of the manufacturer a reasonable number of defects are to be expected in handling an animal fiber. It is expected that the plan will be of use in guiding all those concerned with the consumption of piece goods.

Paolino Gerli, president of the association, presided at the meeting. Sol C. Moss, of Moss-Still, Inc., was elected a member of the board of managers.

•

Silk Consumption Steady

Imports of raw silk during September were 56,859 bales, according to Silk Association, compared with 61,412 bales during previous month and 48,040 bales September, 1931. Deliveries to mills in September were 59,694 bales as compared with 59,905 bales the previous month and 53,819 bales September, 1931. Stocks were 49,393 bales Sept. 30, 1932, against 52,228 previous month and 36,099 year ago.

•

Stehli Heads Broadsilk Division and Scores Overproduction

Henry E. Stehli, Stehli Silks Corp., was elected chairman of the executive committee of the broadsilk manufacturers' division of the Silk Association of America at a committee meeting held Sept. 13. Otto Froelicher, Schwarzenbach Huber Co., was elected second vice-chairman and Walter Stunzi, Stunzi Sons Silk Co., Inc., was elected a member of the executive committee.

Upon assuming the chairmanship, Mr. Stehli stated that it would be his endeavor to persuade members of both the broadsilk and converters' divisions to adopt as a maximum the two and a half to one ratio of stocks to sales, advocated by the Silk Association for some time. He continued:

"If each concern in the silk business today had stuck to this ratio during the past few years, the terrible losses which have occurred in the industry could have been avoided, or at least diminished and the trade would have been in a healthier position than it is today.

"Well deserved earnings cannot be made when more merchandise is produced than can be absorbed in a reasonable time. The two and a half to one ratio will adequately meet the demands of customers, and will prevent those losses which occur when individual firms pile up more woven yards of silk than they can profitably sell.

"Each silk house has learned the danger of overproduction and has suffered financial losses because of that overproduction. To persuade manufacturers and converters to learn by the mistakes of the past, should not be a difficult task. I look forward to the cooperation of the trade in placing the industry on a more rational and constructive basis."

•

To Investigate Possibilities of American-French Textile Accords

Upon his arrival from Europe last month, Henri Creange, business consultant and technical advisor to art industries, announced that he had withdrawn as style advisor for Cheney Bros. and that one of the chief objects of his present trip was to investigate the possibilities of accords between American and French textile interests. Mr. Creange had been associated with the Cheney organization for 15 years, but in 1925 he withdrew from active service with the company and since that time has acted only in the capacity of style advisor.

In the industrial art field, Mr. Creange has particularly directed his efforts toward the coordination of the factors entering into production of style fabrics to the end that large producers can enter the field without too great risk and be able to meet the rapid changes.

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Griffith Represents Duplan Silk in Chattanooga Area

Duplan Silk Corp., New York, N. Y., has opened district sales offices in Chattanooga, Tenn., located in the Provident Building. R. H. Griffiths, formerly with the C. D. Gott Co., of Chattanooga, and widely known in the yarn trade, will have charge of the Chattanooga office and cover the territory served from that center.

•

Silk Association of Canada Holds Annual Meeting

An increase of 40% in employment in the silk industry of Canada for the last year was pointed out as an indication of good times by P. R. Watson, Grouts, Ltd., retiring president, at the annual meeting of the Silk Association of Canada. Mr. Watson warned, how-

ever, against an excess of optimism and stressed the necessity of keeping production in line with demand. Canada is now in the position of being able to supply the domestic market with silk goods, he stated, and importations are unnecessary.

The following officers were elected: president, John Cowling, Louis Roessel & Co., Ltd.; vice-president, W. P. MacDougall, Belding-Corticelli, Ltd.; directors, I. I. Bruck of Bruck Silk Mills, Ltd., and J. A. Burns of Monarch Knitting Co.; chairman tariff committee, P. R. Watson; chairman broadsilk section, J. H. Marx of Associated Textiles, Ltd.; chairman full-fashioned hosiery section, J. A. Bonneville; chairman throwsters' section, A. E. Stewart of Dominion Silk Mills; chairman dyers' section, W. S. Gall of Dominion Silk Dyeing & Finishing Co.; chairman rayon section, Brinley Taylor of Courtaulds, Ltd.

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New Stylists for Cheney

Mrs. Marion Logan and E. Kent Mitchell will be in charge of styling and merchandising, respectively, of the Cheney Bros. fabrics, according to an announcement made by Ward Cheney, president.

Mrs. Marion Logan has been with the company for some time in a styling capacity and Mr. Mitchell has been merchandise manager. The announcement follows the withdrawal of Henri Creange as style advisor of Cheney Bros.

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China Raises Tariff

The proposed increases in the Chinese import duties on all silk and rayon products (except bolting cloth) and other articles became effective Aug. 5, according to advices received in the Department of Commerce from Commercial Attaché Julean Arnold, Shanghai.

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Design Bureau Will Continue

The Design Registration Bureau of the Silk Association of America, Inc., will continue to register silk print designs as in the past, and the efforts of the association will continue to be exerted toward the passage in Congress this fall of legislation for the protection of original designs, it was decided at a meeting of the Design Protection Association.

Designs for patenting will also be accepted by the Design Bureau, which will forward them for patenting at Washington, Sol C. Moss, president of the Design Protection Association, stated, following the meeting. The experience of the bureau in patenting designs, its knowledge of Patent Office requirements, and the speed and economy with which it secures such patents, will make the Design Bureau of special service to the industry during the coming season, Mr. Moss stated.

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Silk Price Tables

The following prices of key items reflect the upward trend in silk quotations:

	Oct. 1	Sept. 1	Oct. 1 1931	Oct. 1 1930
Crack XX 13/15 white 78%.....	$1.45	$2.02	$2.30	$2.48
Tram, 5 thd Japan 85%..	2.15	2.65	3.45	3.70
Crepe 3-4thd 14½ 16 Bob.	1.85	2.00	2.40	2.45
60s-2, spun silk.....	2.85	2.85	3.45	3.80

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Silk Mill News

IMPERIAL SILK WORKS, INC., Danbury, Conn., hat bands and braids, has filed a voluntary petition in bankruptcy listing liabilities of $32,146.21, with assets of $23,518.92.

BELDING-HEMINWAY-CORTICELLI CO. has started construction of a frame addition to connect two mills at 82 Church Street, New London, Conn. The structure will have an asbestos shingled exterior and asphalt roof.

PRINCETON, INC., has been formed to operate the mill of the Princeton Rayon Silk Co., Watertown, Conn. Paid-in capital is $30,000. Max Doft is president and treasurer, and Harry Fleischer, superintendent, is secretary. The mill, on Echo Lake Road, produces rayon yarns and floss.

GILFORD & BROADWAY MILL of Duffy Silk Co., Buffalo, N. Y., has filed plans for an addition to silk mill on Broadway, to cost more than $15,000, with equipment.

JNO. DUNLOP'S SONS, INC., New York, have reopened their silk throwing mill at Spring Valley, N. Y. B. H. H. Noble, executive vice-president of the company, stated that increased demand for thrown silk made necessary this move which will give employment to about 200 operatives. The mill was thoroughly overhauled before starting up. This is the second mill to be reopened by Dunlop within 60 days, as the mill at Olean, N. Y., started up Aug. 1. Plants at Olyphant, Pa., and Olean, N. Y., are now at full capacity.

ALDENE SILK THROWING CORP., Paterson, N. J., care of Cole & Morrill, 45 Church Street, has been organized by Irving Rubin and Leo Yanoff, to operate a local silk mill. Location of plant has not yet been announced.

J. & M. RIBBON MFG. CO. has been incorporated to establish a new business at 110 Straight St., Paterson. William A. Jacobson and Samuel Bloom, at Paterson, and John Maher, of Midland Park, are named as incorporators.

KATTERMAN & MITCHELL at their Columbus (N. C.) silk throwing plant, are installing six additional frames and will increase the present operating force of 40 persons when they are placed. The plant was established last March in the remodeled plant of the Columbus Cotton Mill.

STEHLI SILK MILL, High Point, N. C., resumed operations on Sept. 17 after remaining idle since Aug. 25 when employees walked out in protest to a wage reduction. The agreement by which they returned to work provided for a blanket 19% increase.

NEW SILK CO., Allentown, Pa., recently organized by Samuel Garber, 150 Congress Ave., New Haven, Conn., and Alphonse C. Lova, 133 North 17th St., Allentown, with capital of $10,000, plans operation of a local silk throwing mill.

ARONA SILK MILLS, Simon Baker president, has bought the Queen City Mill, Allentown, Pa., and moved its own plant to the new location, increasing its working staff from 45 people to 120. It is running on broad silk.

DR. F. J. KRYCH, one of the owners of the GILLIS-KRYCH SILK CO. at Kingston, Pa., said the company has bought 100 additional looms, and that as soon as they are mounted and ready for operation the force of weavers will be increased from 50 to 100.

JOAN PLUSH MILLS, INC., has been granted a Massachusetts' charter and will maintain offices in Boston, Mass., and Central Falls, R. I. The company has an authorized capital of $100,000 and lists the following officers: President, David Ansin; vice-president, Bernard A. Joslin; treasurer, Edward Ansin; secretary, Solomon F. Goldfinch.

FRANK IX & SONS, INC., Charlottesville, Va., according to recent reports, will soon begin the construction of an addition to increase the plant's capacity approximately 50%.

THE SILK MILLS OF CANADA, Acton-Vale, Quebec, Canada, are about to install a throwing plant.

BRITISH-AMERICAN SILK MILLS have removed their Montreal machinery and equipment from 1511 St. James Street West, to more commodious premises at 747a Guy Street. Provision has been made for installing new machinery at a later date.

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TEXTILE WORLD'S

Rayon Digest

RAYON is winning the acceptance of the so-called sterner sex. The extent to which masculine resistance to rayon underwear is being broken down was outlined in an interesting article in the *Premier Rayon Review,* published by the Industrial Rayon Corp. Market investigation substantiates those findings.

Fundamentally, of course, the resistance was against the "femininity" of such apparel. However it was strengthened by sad experiences with inferior merchandise. Today, the better garments are masculine in type; and they possess qualities of durability to please even a stern sex.

Not only in men's underwear, but in half-hose and other forms of men's apparel, rayon is making substantial headway.

This fact is more important than even the yarn producers themselves may appreciate. Synthetic fibers need even broader outlets than they enjoy at present. The men's wear field presents an attractive possibility.

Acele Dept., Dupont Rayon Co.

Dress and hat made of "Seriella" Acele crepe

Differential Raised on Rayon Knit Cloth

Considerable importance is attached to the announcement by Arcadia Knitting Mills, largest manufacturers rayon knit cloth, that the poundage price of circular knit fabric would be 75c. per lb. effective Sept. 24. The significance of the announcement lies in the fact that the differential between yarn and cloth is now placed at 15c. per lb., instead of the 10c. differential per lb. which has prevailed for some time. It is expected that other knitters will follow the lead of Arcadia.

•

Monthly Reports on Rayon Imports Discontinued

Discontinuance of the issuance of monthly statistics showing the quantity and value of rayon imports has been announced by the U. S. Department of Commerce. The regular monthly "Analysis of Rayon Imports" will be placed on a subscription basis.

•

World Rayon Output Declines

The world production of rayon in the second quarter of 1932 is estimated at 52,566,000 kilogs against 57,346,000 kilogs in the first quarter, according to advices from TEXTILE WORLD'S Manchester, Eng., correspondent. The reduction is due to the almost complete stoppage of viscose yarn production in the United States during June. The total United States production for April, May and June only reached 11,195,000 kilogs against 16,270,000 kilogs in January, February and March. Britain and Italy compete hard for second place among world producers, the production in Britain being 8,530,000 kilogs against Italy's 8,750,000 kilogs in the June quarter, and 8,760,000 kilogs and 8,835,000 kilogs respectively in the March quarter. Japanese production was a marked exception to the general decline, the output showing a 20% increase. French production was fully maintained but German output fell.

•

Imports Curled Staple Fiber

Commercial Fiber Co. of America, Inc., is now importing to this country a new type of curled staple fiber produced by Snia Viscosa in Italy. This fiber, known as Snialocks, is of the viscose type and is available in 1½ and 5½ in. staple lengths and of 1½ denier filament.

The curl of the individual fibers is said to be similar to that of the natural fibers, thus giving a suppleness to the material not found in ordinary forms of staple fiber.

•

New Japanese Company

Advices from Yokohama in August announced the organization of a new rayon company, capitalized at 10,000,000 yen, which will operate a rayon plant at Niihama, Ehime Prefecture. It was stated that the Kurashiki Kinuori Kaisha, Okayama Prefecture, has entered into an agreement with the Sumitomo Coshi Kaisha, under the terms of which the Kurashiki will establish the plant with the cooperation of the Sumitomo interests. One-half or more of the capital stock will be held by Kurashiki, the bulk of the remainder to be taken by the Sumitomo group. The firm is said to plan daily capacity of 10 tons of viscose process yarn, possibly expanding into other synthetic yarn divisions later.

•

"Prosperity" Film to Show Enka Workers

Universal Newsreel, Chicago, has completed arrangements whereby 400 ft. of sound pictures of 2,200 employees of the American Enka Corp. entering the plant for work are to be taken. The pictures will become a part of the "prosperity" newsreel which will be distributed among theaters of the country.

•

Rayon Product Value Off 11.2%

Establishments engaged primarily in the manufacture of rayon and allied products in the United States in 1931 reported products valued at $132,783,559, according to a preliminary tabulation of the Bureau of the Census of data collected in the 1931 Census of Manufactures. This total represents a decline of 11.2% as compared with $149,546,107 reported for 1929, the last preceding census year. The total for 1931 is made up of 150,509,654 lb. of yarn, valued at $112,433,660, and allied products valued at $20,349,899.

The Bureau made public a table of

comparative figures for 1931 and 1929, the chief feature of which is the notable increase in the output of finer than 125 denier; this production rose 157.2% with a dollar value increase of 44.1%. Average price of these finer yarns fell from $1.65 to 93c. in the two years. The allied products division (sheets, waste, etc.) also showed a big rise, jumping 133.9% in the same period.

Figures in the following table are preliminary and subject to revision:

	1931	1929
Number of establishments	32	29
Wage earners (average for the year)	38,732	39,106
Wages	$38,220,094	$44,697,129
Cost of materials, containers for products, fuel and purchased electric energy	$36,206,575	$33,334,753
Products, total value	$132,783,559	$149,546,107
Yarns:		
Total pounds	150,509,654	116,632,378
Total value	$112,433,660	$140,846,595
Finer than 125 denier—		
Pounds	32,959,202	12,813,854
Value	$30,525,206	$21,176,640
125 to 150 denier—		
Pounds	99,653,106	85,528,539
Value	$70,876,701	$101,494,715
Heavier than 150 denier—		
Pounds	17,897,346	18,289,994
Value	$11,031,753	$18,175,240
Allied products (sheets, waste, etc.), value	$20,349,899	$8,699,512
Value added by manufacture	$96,576,983	$116,211,354

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Rayon Price Comparisons

The following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

Viscose Process	Oct. 1	Sept. 1	Sept. 1 1931	Sept. 1 1930
75 denier (18-30 fils)	$0.90	$0.90	$1.35	$1.65
100 denier (40 fils)	0.75	0.75	1.10	1.30
150 denier (40 fils)	0.60	0.60	0.75	1.00
Acetate Process				
150 denier	1.00	1.00	1.00	1.85
Cupra Process				
150 denier (112 fils.)	.....	.....	1.10	1.25
Nitro Process				
150 denier	0.65	0.65	0.75	0.95

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Yardage Problem in Rough Weaves

Due to the fact that there has been considerable controversy regarding proper methods for determining the yardage of fabrics in fall lines which are easily stretched, particularly rough crepes, sheers and knit goods, the United States Testing Co., Hoboken, N. J., announces that it has installed special equipment for determining correct yardage of highly elastic fabrics.

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Celanese Raises Fabric Prices

In line with the advance in yarns, the Celanese Corp. announced, in mid-September, increased prices on all-Celanese and silk and Celanese fabrics.

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Heavy Laces Popular With Parisian Designers

Laces of heavier construction and with the dull appearance which prevails this season have been used by several of the leading dressmakers of Paris, according to the report of the Paris office of the Dupont Style Service. Very light, filmy laces seem to have been entirely abandoned.

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DuPont Concentrates Charlotte Offices

E. I. du Pont de Nemours & Co. has announced that activities of subsidiary companies and divisions of the duPont company in Charlotte, N. C., have been concentrated at 228 West First St. Among those affected are the DuPont Rayon Co., Grasselli Chemical Co. and Roessler & Hasslacher Chemical Co.

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Investigates Bamboo as Rayon Raw Material

Attempts to produce rayon from bamboo, conducted by the Forest Research Institute of the Indian government, have failed thus far to yield an entirely satisfactory product, but further experiments are in progress.

According to a report from assistant trade commissioner, Wilson C. Flake, Calcutta, to the U. S. Department of Commerce, the amount of alpha cellulose is only about 80 to 90% in bamboo pulp, while it runs as high as 95 to 96% in wood pulp. The percentage of ash in bamboo pulp is also high, about 0.3%, as against the maximum 0.1 to 0.2% required in cellulose most suitable for rayon. The Institute is endeavoring, however, to reach a higher percentage of alpha cellulose and to lower the ash percentage in the bamboo since it is believed in Indian circles that successful production of rayon from bamboo would provide an additional and useful outlet for the large domestic bamboo supply.

Denier and Filaments of American Rayon Yarns

DENIERS	15	25	30	40	45	50	55	60	65	75	80	100	120	125	140	150	170	180	200	250	300	450	600	900	1200	QUALITIES
I. Viscose Process:																										
The Viscose Company						14				18		18		36	24	36 40			30	36	44	54	72	100	150	1st and 2nd
										30		40				60			75		60					Bright and Dulesco
Du Pont Rayon Co						20				30		40			24	40			35		50	72	96	144		Bright & Lol Std 1-2
												60		50		60 60			80		80					Bright & Lol S.N 1-2
Industrial Rayon Corp										18		40		34 50	30	40 60			40		60	60				1st and 2nd
			8			14				20		28		34		40			40		60					Spun Lo
American Enka Corp						18				18		18			24				32		42					1st and 2nd
										30		40			40 60				60							Bright & Perlglo
Am. Glanzstoff Corp							15			30		40		42	32	42 60	32			62	62					1st and 2nd
The Belamose Corp												40			24	40					42	66	66	126		1st and 2nd
Acme Rayon Corp															44						44					1st and 2nd
Delaware Rayon Co															24 44	24			30	44	60	60	88			1st and 2nd
															60 90											Bright & Dull
Skenandoa Rayon Corp															40											1st and 2nd Bright & Dull
New Bedford Rayon Co.										24		40		40	24	40 60			44		44	72	88	144		1st and 2nd
Tubize Chatillon Corp.						20				30		40			40				40		44					1st Bright & Dull
II. Nitro-Cell. Process:																										
Tubize Chatillon Corp						12				18		26		30												1st and 2nd Sanconize
						12				18		26		30		36										Chardonize
III. Acetate Process:																										
The Viscose Co						14				20		28		32		36					56					Seraceta
Celanese Corp of America					13		13		20	20		26	34		40	40	40		40		80					One only
										40		40	40			80										
Du Pont Rayon Co.					13			18		24		32	32			50					100					Acele
Tennessee-Eastman Corp.					13				20	26		34	40			52										Dull
					13				20	20		34	40			40										Bright
Tubize Chatillon Corp.					13		13		13	20		26	26			40										1st Chacelon Bright & Dull
IV. Cupra-Amm. Process:																										
American Bemberg Corp	24	24	24	30		36			45	60	60	75	90			112		135								1st and 2nd

Revised September, 1932, by COX & FULLER, consulting textile specialists, 320 Broadway, New York City

TEXTILE WORLD'S

Knit Goods Digest

IT IS difficult to see how any member-company of the National Association of Hosiery and Underwear Manufacturers can afford to be without executive representation at the conference to be held at the Waldorf-Astoria Hotel, New York, Oct. 26 and 27.

This will not be just another convention. It will be a clinic. Its possibilities for diagnosing the troubles of the industry, and for prescribing remedies, will be limited only by the inclinations of the members themselves.

Raw silk classification rules, cost accounting methods, statistical service, are a few of the fundamental topics to be discussed. These are dollars-and-cents subjects, offering manufacturers monetary benefits in return for their attendance and interest. The meeting would appear to be a good investment.

Hosiery and Underwear Executives To Hold Special Conference

A two-day conference of excutives of the hosiery and underwear industry to discuss major problems will be held at the Waldorf-Astoria Hotel, New York, Oct. 26 and 27. The meeting is the result of the decision made at the annual meeting of the National Association of Hosiery and Underwear Manufacturers last April that a general conference should be held in the fall. Plans have been worked out by an advisory council of 42 appointed by William Meyer, president of the association.

The first event on the program will be a meeting of the board of directors of the association on the afternoon preceding the general conference. The advisory council will meet in the morning of Oct. 26 and general activities will start with a luncheon, followed by divisional meetings of the full-fashioned, women's seamless, half hose, children's, woolen hosiery, and underwear groups. There will be two general sessions on Oct. 27. The morning session will be devoted to presentation of a report of the raw silk committee on classification rules and it is expected that a progress report will be made concerning the association's work in developing cost accounting. Another important feature of the morning session will be definite recommendations for setting up a statistical service. The afternoon session will be devoted to policies for the industry as a whole.

Earl Constantine, managing director of the association, in announcing the dates, said:

"The results of the conference are bound to have an effect on the industry, and it therefore goes without saying that the president or principal managing executives of every company affiliated with the association should immediately plan to attend, participate in the discussions and have a voice in the decisions. Attendance will be strictly limited to primary executives."

•

Shortage in Full-Fashioned Hosiery Predicted

Commenting on the fact that the price on 4-thread, 42-gauge full-fashioned hosiery has been increased to $4.50 by Berkshire, Apex, and Rosedale, a bulletin of the National Association of Hosiery and Underwear Manufacturers states: "This is by no means an unexpected development, in view of the recovery that has taken place in the price of raw silk, the distinct firmness shown by that raw material, and the fact that demand for hosiery during the last month has been the best of any month this year, with many mills now operating to capacity. Considerable evidence exists that the predicted tightness in nearby delivery will shortly be a real factor in the primary market situation."

•

Happy Days!

We met a hosiery manufacturer the other day who stated that he was on his way West to handle a very serious complaint from a customer. Instead of being glum, the manufacturer made the announcement quite cheerfully. Before we had an opportunity to question his sanity, however, he explained that for the first time in years he was going to see a customer who complained bitterly because he, the manufacturer, would not accept orders for nearby delivery.

•

Non-Run Hosiery on the Retail Counter

While it is too early to make any predictions concerning the extent to which consumers will take up non-run hosiery, the initial response to offerings by retailers may be indicative. Consumer interest seemed to run in direct proportion to the amount of promotion done by the retailer. Although it is difficult for anyone in the textile industry to realize, since there has been so much agitation, the fact is that the average consumer knows nothing about non-run hose as offered at present. The delivery problem of non-run being what it is, it is expected that consumer acceptance will be built up at about the same rate as supply.

•

New Terms Proposed by Chain Store

Quite a furor was created in the knit goods trade when a large chain store and mail order house requested that terms of payment be based on date of receipt of goods rather than date of shipment. The excuse given was that a new accounting system required such dating. The National Association of Hosiery and Underwear Manufacturers issued a statement urging its members to refuse the request, pointing out that such a proposition would mean an extension of terms, would make difficulty for the manufacturer in dating the invoice and would make the manufacturer responsbile for merchandise while in the process of delivery, thus overthrowing the established custom of f.o.b. mill.

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Hanes Hosiery Strike Ends

Of short duration was a strike of several hundred workers at the Hanes Hosiery Mills Co., Winston-Salem, N. C., one of the largest seamless hosiery producing units in the country, employing about 1,200 operatives. The strike began in the boarding room, Sept. 8, but spread to other departments of the plant. The strikers demanded a return to the wage scale in effect in September, 1931, minus the equivalent of a 20% reduction, and the situation was so tense that on Sept. 12 the management decided to close the mill. James G. Hanes, president, and James N. Weeks, vice-president and general superintendent, held several conferences with the workers, but after the trouble had quieted, more than 900 operatives returned to work and the strike definitely ended. The management declared that "the past will be forgotten and the mill will follow its usual policy of endeavoring to meet reasonable wage standards."

Tentative Dates Selected for Knitting Arts Exhibition

Dates for the 1933 Knitting Arts Exhibition, held under the auspices of the National Association of Hosiery and Underwear Manufacturers, have been tentatively selected and the Commercial Museum, Philadelphia, reserved for April 24 to 28. As in recent years, Chester I. Campbell, Park Square Building, Boston, will manage the exhibition and handle reservations for space.

•

Carolina Yarn Men Entertain Knitters

Earl Constantine, managing director of the National Association of Hosiery and Underwear Manufacturers, was the guest speaker at the banquet of the Carolina Yarn Association, held at Graystone Inn, Roaring Gap, N. C., Sept. 17. More than 150 members and their guests assembled at the mountain resort, Sept. 16, and participated in the golf tournament which preceded the third annual banquet.

Herman Smith, of Amos Hosiery Mills, received low net prize and will hold the association's trophy until next year. S. L. Diggle, of Dixie Mercerizing Co., had low gross score. About 200 members and guests attended.

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Outerwear Knitters Seek Standard Measures

Cooperation of the Bureau of Standards, Washington, in the establishment of a commercial standard covering measurements, methods of measuring and tolerances for men's, women's and boys' swimsuits and all sweater lines, has been asked by the National Knitted Outerwear Association.

•

Blue Moon's Aid to Tidiness

A patent has just been issued to Largman, Gray Co., Croyden, Pa., for the "Guidaseam," an aid to pulling on stockings so that the seam will be straight. The guide consists of an unobtrusive V-shaped mark knitted into the exact middle of the hem which the wearer may center at the thigh, thus centering the seam.

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Announces Waterproof Knit Outerwear

A ribbed knit sports coat and a lumberman's jacket which are water and moisture repellent have been placed on the market by the Guardigan Knitting Co., Philadelphia.

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Knitting Mill News

McDONOUGH (Ga.) HOSIERY MILLS, Inc., have purchased 31 70-gage knitting machines which will make misses' as well as infants' line of anklets, running in sizes from four to ten, for which there is current demand. This mill will make fine gage anglets with picot edge and striped rib tops, also flat tops with small cuffs.

BELDING TEXTILE MILLS, INC., Belding, Mich., have been organized to take over and continue operation of the former Richardson Silk Mill in that city. The plant has been converted into a hosiery mill and production will start early in October. Earl A. Clements, Jr., of Grand Rapids, heads the new concern. Other officers are J. K. Hammerman, of Chicago, vice-president, and Siegel M. Judd, of Grand Rapids, treasurer.

UNION SPORTSWEAR CO., Lynn, Mass., has increased the wages of its 120 employees 10%.

D. & W. HOSIERY MILL, INC., Meridian, Miss., has plans for a two-story addition, 52x132 ft., and will soon begin superstructure, estimated to cost over $23,000, with equipment. L. L. Brasfield, Meridian, is architect.

CONDE KNITTING CO., Oswego, N. Y., is installing a new Ames boiler, along with general repairs which includes the painting of the entire plant. New equipment is also being installed.

AUGUSTA KNITTING CORP. has been formed to take over the operation of the old company of the same name at Utica, N. Y. The best selling lines of the old company will be continued and new salable items introduced. A change-of-name certificate has been filed by the old company, its title becoming Augusta Stockholders, Inc. Officers of the new company include Rodney W. Jones, president, H. S. Bourgeois, vice-president and secretary and Rodney W. Jones, Jr., vice-president and treasurer.

SHAUGHNESSEY KNITTING CO., Watertown, N. Y., is being made ready to start the manufacture of woolen and cotton knit dresses in addition to rayon knitwear. Machinery for this new line is being installed.

FELSAN MILLS, INC., Paterson, N. J., care of Paul Rittenberg, 132 Market Street, recently organized by Felix F. Sanduski, plans operation of a local hosiery mill.

WHISNANT HOSIERY MILLS, Hickory, N. C., have work under way on a new one-story addition to mill, and will install about 25 new knitting machines and auxiliary equipment. Expansion program will cost over $30,000 with machinery.

SCOTT HOSIERY MILLS, Graham, N. C., with authorized capital stock of $50,000, has been incorporated by Don E. Scott, M. G. Scott and W. DeR. Scott, all of Graham. The company owns a full-fashioned hosiery plant.

M. H. SORKIN, New York, will manage a new plant which reports from High Point, N. C., state will be established to manufacture women's knit rayon underwear within the next few weeks. Leland Sanford, High Point, is interested.

GOTHAM SILK HOSIERY CO. is reported to have reconditioned one of its Philadelphia plants, long closed, in preparation for reopening.

LAUREL HOSIERY CO., Reading, Pa., took out a permit for a new mill, 102 x 181 ft., one story, at Fifth and Bern Streets, Reading. The estimated cost is $30,000. Alexander & Hummel are the contractors.

ENGLEWOOD (Tenn.) MFG. COMPANY, manufacturer of children's hosiery, has installed new equipment. This company formerly operated 130 knitting machines.

KINGSPORT (Tenn.) HOSIERY MILLS have added equipment valued at about $75,000. The plant is operated as a unit of the Miller-Smith Hosiery Mills, of Chattanooga. This will increase the present capacity about 50%, the new set-up being 16 full-fashioned machines.

MORGANTON (Tenn.) FULL-FASHIONED HOSIERY CO. will install 12 new f.f. machines by Jan. 1, increasing production by one-third.

WALTER FRED HOSIERY MILLS, INC., Nashville, Tenn., recently completed the installation of additional equipment costing approximately $75,000.

ALLEN-A Co's Sheboygan plant, manufacturing children's hose, has been moved to Kenosha, Wis. Otto Wisch from Sheboygan, is now in charge of the division occupying a portion of the Allen-A plant in Kenosha.

TEXTILE WORLD'S

Processing Digest

CREASEPROOF cotton and rayon fabrics represent the latest addition to the roster of new, or improved, finishes which may be counted upon to bring about more profitable days for the processing branch of the industry.

Gradually, there are being developed fabric qualities which will produce consumer satisfaction instead of consumer disgust. Gradually, it is becoming possible to purchase goods whose original color, size and appearance may be regarded as permanent.

To those who still believe that volume business depends upon fugitive characteristics necessitating constant replacement, this will not be good news. But to those who know that consumer approval is the only sound basis for sales expansion, it will be a most encouraging trend.

A. A. T. C. C. Notes

The rayon subcommittee of the American Association of Textile Chemists & Colorists recently issued a report on the determination of the tensile strength and elongation of rayon. The method recommended, as published in the *Proceedings of the Society*, is as follows:

1. Type of Machine — Single-strand machine operated by the "dead-weight-in-oil" principle, by motor or hydraulic pressure.

2. Distance between Jaws—18 in.

3. Placing Yarn in Machine—Retention of Twist—Care should be used that the twist present in the yarn as received is not changed in any way while the yarn is being wet or placed in the machine. If the yarn is received on a spool, cone, pirn, or other similar put up, the yarn should be removed from the package by rotating the package on its own axis rather than by drawing the yarn over one end of the package. Twist can be retained during the wetting operation by removing yarn from the spool, cone, or other device on which it is received, in the form of a loop, both ends of which are held while the yarn is wet out in a suitable container. In the case of highly twisted yarns that tend to kink, a large shallow dish, such as a wash basin, can advantageously be utilized.

4. Method of Applying Tension to Yarn—Tension is applied by hand—the tension being just sufficient to take up any slack that may be in the yarn. In the case of 150-denier rayon, apply less than 2 grams total tension. The use of weights for the application of uniform tension is recommended when the accuracy of the work is open to question—for example, in legal work.

5. Speed of Movable Jaws—12 in. per minute.

6. Number of Determinations Necessary to Obtain Fair Average—Ten.

7. Method of Reporting Results—Report elongation in per cent increase over original length. Report breaking strength in terms of grams per denier.*

*Note—Denier should be determined on length of yarn taken as near as possible to the yarn actually used for the tensile and elongation determination.

The fall meeting of the Southeastern section is being held at the Ansley Hotel, Atlanta, Ga., Oct. 15, at 7 p.m. Papers being read at the meeting are as follows: "Cotton Warp Sizing and Its Composition," by C. M. Stodghill, president of Stodghill Chemical Co.; "Dyeing and Finishing Troubles Caused by Mildew or Mould Fungi," by Robert Cowan, Quaker City Chemical Co., and "Rayon Knitting, Dyeing, and Finishing," by Carl Epps, Tubize-Chatillon Corp., Rome, Ga.

The first meeting of the New York Section for the 1932-1933 season was held at the Chemists' Club, New York City, on Friday evening, Sept. 23. Speakers were D. H. Jackson, of the Croll-Reynolds Co., whose subject was "Vacuum Refrigeration for the Textile Industry," and C. F. Chandler, of the Acele Division, E. I. DuPont deNemours & Co., whose subject was "Properties of the Acele Yarns in Regard to Dyeing and Finishing." Mr. Jackson described the operating principles of a vacuum refrigerating unit which is suitable for cooling tin-weighting solutions, mercerizing liquors, etc. Mr. Chandler outlined the procedures to be followed in processing Acele yarns and fabrics, and discussed the cause and prevention of the more common defects encountered in these materials.

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Wool-Like Cotton Fabric

AT the DuPont Exhibit, Atlantic City, Bellman Brook Bleachery displayed recently a new development by which cotton fibers are chemically treated so that the fibers curl, producing a permanent wool-like texture. Two wool-like fabrics featured were Dovelin, a Butterfield print, and a Cameron print, an Arthur Bier fabric.

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Earle Mauldin Heads Crown Dye Works Office

Crown Piece Dye Works, Inc. of Woonsocket, R. I., has opened a New York office under the management of Earle Mauldin, temporarily at 11 Waverly Place, East.

Mr. Mauldin was for many years in close touch with the textile industry throughout the South, associated with J. E. Sirrine & Co., mill engineers of Greenville, S. C. He also became well known through his connection as manager of the Southern Textile Exposition.

This office is being established to promote closer contact with the Crown company's present and future customers.

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Sayles to Produce Creaseproof Fabrics

Announcement that Sayles Finishing Plants, Inc., and Pacific Mills have been licensed to produce creaseproof fabrics by the Tootal, Broadhurst & Lee process has quickened still further the interest in methods for rendering cotton and rayon materials less susceptible to creasing and crushing. This process, which was described briefly in the September issue of TEXTILE WORLD, is said to give to cotton and rayon the non-creasing characteristics of wool. It is understood that in England creaseproof fabrics have been produced on a moderate scale for some months and that negotiations are pending for the appointment of other licensees in this country.

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New Emulsifying Compound

Emulphor FM Oil-Soluble, a new compound for the production of emulsions, is announced by General Dyestuff Corp. This product is an oil of moderate viscosity, which readily mixes with most oils and fats, or is soluble in them. In water and soap solutions, it is soluble only to a moderate extent, but emulsifies readily with them. The compound is stable also in certain organic acids and shows good emulsifying properties in acid media. Emulphor FM oil-soluble makes it possible to

emulsify easily heavy oils, solid fats, and mineral oils. It yields stable emulsions in the form of thin liquids, and creamy emulsions can be reduced to the liquid form without difficulty. This new compound cannot be used for emulsifying fatty acids such as olein; but it may be employed satisfactorily for emulsifying oils containing up to about 20% free fatty acid.

Other advantages of Emulphor FM oil-soluble cited by the manufacturer include the following: (1) acts as an oil and therefore is not an undesirable addition to the emulsifying process; (2) no complicated emulsifying processes are necessary; (3) renders possible the production of emulsions of all liquid oils by the cold method; (4) renders possible the production of highly concentrated emulsions which may be used as such or after having been suitably diluted; (5) prevents the resinification of unsaturated oils and neutralizes the free fatty acids which have developed in storing; (6) facilitates the washing of oil emulsions; and (7) permits working without alkalis.

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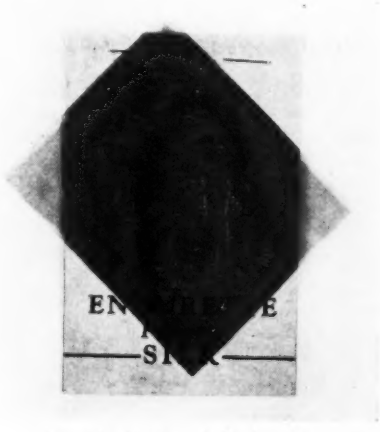
Waterproofed Silks

Commercial production of silks waterproofed by new process which is said to be a marked improvement over older methods is announced by Endurette Corp. of America, 260 Fifth Ave., New York, special sales agents for Irvington Varnish & Insulator Co. Features of these fabrics, known as Endurette processed silks, as cited by the manufacturer, are their durability; good resistance to alkalis, acids, and organic solvents; and the fact that they are unaffected by extreme heat or cold and do not become sticky in the hottest or most humid of weather. The silks are offered in various shades and are expected to find favor in the manufacture of raincoats and in other fields where waterproofed and airproofed properties are essential. It is stated also that tests made recently indicate that Endurette processed silk permits passage of 40% of the ultraviolet rays of the sun, and that for this reason the fabric lends itself for use in sun suits for beach wear, windows of greenhouses, etc.



Sample book of Endurette

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Engineers to Discuss Drying Problems

Drying of textiles and other materials is to be discussed at a meeting of the American Society of Mechanical Engineers to be held at 29 W. 39th St., New York, at 7 p.m., Oct. 18. Textile engineers interested in this subject are invited to attend the meeting and are urged to participate in discussion of the paper to be presented. The authors of this paper, which is entitled "Classification of Drying, Including Graphical Analysis of Air Drying as Developed Abroad," are Arnold Weisselberg, Chas. W. Thomas, and Theodore Olive.

The authors set up a classification of the kind, nature, and state of liquids; and means available for the removal of liquid.

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New Dyestuffs

E. I. duPont deNemours & Co., Inc., announces Ponsol Blue Green Y Double Paste, a vat dyestuff producing bright bluish greens of very good fastness to light, chlorine, washing, and perspiration. This product is said to give full shades dyed either cold or at higher temperatures. It is also stated that Ponsol Blue Green Y Double Paste is level dyeing, penetrates well, and is practically unaffected by metals.

General Dyestuff Corp. has placed on the market two new Naphtols AS-SG and AS-SR, which produce in conjunction with Fast Red B base or salt, fast black shades of any cast desired by the trade. The self shades or intermediate shades produced by mixing both Naphtols possess excellent fastness to rubbing and very good fastness to light, washing, boiling soda, chlorine, and peroxide bleach. Their substantivity ranges between 90 to 95% in a volume of 1 to 20. Since they can be submitted to an intermediate salt rinse, they are suitable for all types of machine dyeing. Both Naphtols dissolve easily according to the hot or cold dissolving method.

Processing Plant News

KEYSTONE PIECE DYE WORKS, Paterson, N. J., will have mortgages foreclosed against its buildings and machinery according to court permission thereby ending efforts of stockholders and creditors to reorganize.

CONNEAUT WINDING CO., INC., has leased the building recently erected by the A. M. Smyre Mfg. Co., Gastonia, N. C., for a five-year period, and will begin the manufacture of insulating materials and similar products within the next few weeks. W. G. Banfield, Conneaut, Ohio, is manager.

HOPE DYEING & FINISHING CO. has leased a building at Hudson Boulevard and 13th St., West New York, N. J., for installation of plant to dye and finish velvets. Employment of 50 to 75 operatives is contemplated. Marcel Ruegge president of the company was associated 12 years with Lyons Piece Dye Works.

NATIONAL SILK DYEING CO. has transferred the equipment of the Eastern Piece Dye Works, Allentown, Pa., to its skein dyeing plant in Allentown. The consolidated Allentown plant handles pure dye and weighted silk piece goods, yarn dye finishing, and will continue skein dyeing.

APPONAUG (R. I.) CO.'s net income for fiscal year ending June 30 was $97,402, equal to 73c. on the common stock as compared with $616,786, or $6.31 per common share in the preceding year. Total current assets were 26.95 times current liabilities, as compared with a ratio of 11.29 in 1931.

ROCK HILL (S. C.) PRINTING & FINISHING CO. will erect print room addition 33 x 158 ft., one story. Addition to boiler room, to house additional boiler, will be 36 x 53 ft., one story.

POND LILY CO., New Haven, Conn., has started an addition to its plant at 1475 Whalley avenue, 31 x 21 ft., one story, of brick construction.

WALTHAM (MASS.) BLEACHERY & DYE WORKS. William J. Bannon and Joseph A. Lyons have been appointed receivers.

Textile World Analyst

BUSINESS SPURT REFLECTED IN BETTER MANUFACTURING MARGINS

September Activity Near Normal—The figures show that September textile activity, on the basis of total fiber consumption, closely approximated that of a normal September. The low rate of activity for the first half of this year, however, continues as the dominating influence when all of 1932 to date is considered, total fiber consumption for the nine months being 18% less than for the first nine months of 1931 and 24% less than for the first eight months of a normal year. In determining a normal year, month by month consumption figures for the period 1924-1931 were averaged.

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SUFFICIENT time has passed since the buying wave hit the textile markets in August to determine the effect on prices. At the height of activity there is little question that mills were more interested in getting sufficient orders on the books to insure full time than they were in the price structure. The lull in buying which naturally followed in September, however, gave the mills an opportunity to survey the situation from the standpoint of profits.

During August, the manufacturing margin on print cloths, representing the spread between clean cotton and the poundage selling price of a group of representative fabrics, stood at 11.1c. per lb. Prior to the Government crop report, Sept. 8, the margin was 12.9c. per lb. The crop report depressed the price of raw cotton radically and it was a few days before quotations were really representative. However, taking the average for the following week, the manufacturing margin was 13.64c. per lb., the price of fabrics having declined less than cotton. Averaging week ended Sept. 24, the manufacturing margin was 12.63c. per lb.

It is obvious from the above figures that, after allowing for the fluctuations in raw material, mills did not hold all the benefits derived from the turn in business, the margin being less the third full week of the month than it was on the day preceding the crop estimate. To many the decline in raw cotton presented a real opportunity for manufacturers to increase margins and thus increase the possibilities for profitable operation. Business was not brisk, there was little pressure from buyers and the mills were fairly well sold up. Under the circumstances it should have been possible to hold prices without too much difficulty. What this would have meant to the mills is revealed by the fact that the margin for the week ended Sept. 17 was 13.64c. Unfortunately, prices declined thereafter and all the gains were not held. The following figures show the fluctuation in margin:

Date	Margin in cents
July, 1931	15.3
October, 1931	12.3
January, 1932	12.1
June, 1932	9.5
July, 1932	9.1
August, 1932	11.1
Sept. 7, 1932	12.9
Week ended Sept. 17	13.6
Week ended Sept. 24	12.6

Carded yarns showed a similar course of events. On Sept. 7, the manufacturing margin, representing the spread between clean cotton and average price for a group of carded yarns, was 12.75c. per lb. Average margin for the week ended Sept. 17 was 13.3c.; and, for the week ended Sept. 24, 12.51c. Comparative margins for other periods were as follows:

Date	Margin in cents
October, 1931	12.7
April, 1932	10.8
July, 1932	9.6
August, 1932	9.2
Sept. 7, 1932	12.7
Week ended Sept. 17	13.3
Week ended Sept. 24	12.5

Due to the fact that the prices for combed yarns held fairly steady during September, there was a very noticeable increase in manufacturing margin. For example, 60/2 C.P. warps were quoted at 46c. most of the month while the average price for 1¼ in. cotton was 12.25c. per lb. Taking waste into consideration, cost of cotton was 16.33c. per lb., leaving a margin of 29.67c. Other comparable margins were: July, 1931, 24c.; July, 1932, 21.4c.; August, 1932, 24.8c.

Raw wool had a rapid rise after the first of August, Montana and Wyoming original bag, for example, increasing from 34c. per lb. (clean basis) on Aug. 1 to 45½c. the latter part of September. Contrary to the situation in cottons, however, the raw material advance did not stimulate manufacturers to increase manufacturing margins. Taking a typical worsted yarn and subtracting the cost of clean wool, the margin in September was 54.5c. per lb. Comparable margins were 53.5c. in July, 64c. in June, and 76c. in July, 1931.

The general conclusion to be drawn from a survey of the entire textile situation is that the buying spurt lifted manufacturers from the despairing attitude to such an extent that there was a real movement to ask better prices.

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Raw Silk Index: Date	Raw Silk
July 31, 1914	100	100	100	100	100	100	100	100	July 31, 1914	100
1925	193	193	193	177	221	226	222	234	1924-25 season	140
1926	146	159	161	152	189	195	199	210	1925-26	172
1927	130	146	153	147	179	184	186	195	1926-27	141
1928	160	162	163	166	218	201	198	197	1927-28	126
1929	158	163	156	168	182	184	193	198	1928-29	126
1930	114	131	127	147	131	143	164	190	1929-30	104
1931	75	97	99	121	102	114	134	165	1930-31	62
1932										
Jan.	53	78	74	102	94	104	127	147	Jan., 1932	41
April	49	75	73	98	83	98	121	133	May, 1932	28
June	42	66	63	94	62	76	110	116	June, 1932	25
July	47	68	62	96	59	72	101	116	July, 1932	25
Aug.	60	75	76	94	66	75	99	116	Aug., 1932	36
Sept.	59	81	84	107	82	94	116	130	Sept., 1932	40